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Maternal and Child Health Programs Under the Social Security Act*

EDWIN F. DAILY, M.D., F.A.P.H.A.

U. S. Children's Bureau, Washington, D. C.

WHEN we review extension and improvement of health services for mothers and children during the past 4 years we find that there have been definite trends in the methods of administration, in the type and quality of service provided, and in the mortality rates. A few of these trends will be mentioned.

MERIT SYSTEMS OF PERSONNEL ADMINISTRATION

For the nation as a whole the people are developing a much greater confidence in the health services for mothers and children under the official agencies. Men and women with the best professional training and experience are now being secured for service in the maternal and child health programs. The state health agencies have all adopted the principles of merit systems of personnel administration, and have gradually raised the minimum qualifications required for all types of public health personnel. I predict that at the end of another 4 years we will look back on this step as one of the most significant and far-reaching improvements of public health service accomplished in this period. Although in 1935 several state health departments were free from political coercion and control, only 11 were working under civil service systems when the Social Security Act was passed.

At present the public health personnel in 19 states are employed under civil service laws and all the other state health agencies are establishing merit systems. Far more important than the type of merit system itself is the almost unanimous desire of public health officials really to maintain their services on a sound merit system basis.

TRAINING OF PERSONNEL AND GRADUATE EDUCATION

In recent years there has been a decided trend toward the employment by public health agencies of staff physicians who are clinicians trained in a specialty as well as capable administrators. This policy not only has resulted in far better health service in each special field but has also brought

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about an increasing respect for public health by practising physicians and by the public. This change in the field of maternal and child health is striking. In June, 1934, there were only 31 state divisions of maternal and child health, and less than half the states had physicians as directors on a full-time basis. Every state now has a division of maternal and child health, and all are directed by physicians. Most of these directors have had graduate training and experience in either pediatrics or obstetrics, and more than half have had graduate training in public health administration. In addition to the division directors the state agencies are employing 70 full-time medical assistants and consultants with pediatric or obstetric training or experience.

Since the establishment of the social security programs during this 4 year period, the states have paid for the graduate training of 762 nurses, in part or in whole with maternal and child health funds. Many state division directors and their medical and dental assistants also have been provided graduate training.

Postgraduate lecture courses and teaching clinics in obstetrics and pediatrics have been made available at least once to almost every practising physician in the United States, and in many states these courses are now established on a permanent basis. In a few states the full-time obstetricians and pediatricians employed by the health departments and assigned to medical schools primarily for graduate medical teaching also are assisting in improving undergraduate medical education. Postgraduate courses in children's dentistry for practising dentists have been planned and financed by 20 state health agencies. During 1940, the state maternal and child health plans included $454,448 for various types of postgraduate courses. I do not know of a surer way of improving health than by strengthening the basic and graduate education of the members of the professions who must ultimately direct or render the actual services to be provided.

We all realize that health cannot be purchased with money, that money itself has never saved a life, that equipment and supplies are wasted unless a trained mind directs their use. Improving health by spending money is possible only when education and care are provided for the people by personnel with training and experience in the various specialties.

THE DEVELOPMENT OF CLINICS AND CONFERENCES

The policy of providing prenatal, postpartum, and child health medical services in a clinic or on a conference basis has been accepted in many areas in recent years. Both from an economic and an administrative viewpoint clinics and conferences have in most areas proved the most satisfactory method of providing health services for individuals who could not secure this service from their own physicians. State health departments reported that during the year ending June 30, 1940, they were supervising 2,886 child health centers (48 states) and 1,617 prenatal centers (42 states) where clinics were conducted by physicians at least once a month. Conducted less often than once a month there were 3,124 additional child health centers in 32 states and 373 prenatal clinics in 15 states. More than half of these centers have been established during the past 2 years, and expansion continues to be rapid. The Children's Bureau has recommended that local practising physicians be employed to conduct the clinics and that they be paid for their services. Formerly most of the clinics were conducted by local health officers, who often lacked special training and experience in obstetrics and

pediatrics. In 1936, no practising physicians were paid from state or federal maternal and child health funds for conducting clinics. In 1940, 2,830 practising physicians were paid on a fee basis for conducting child conferences and 1,115 for conducting prenatal clinics. This year over $410,000 is budgeted for payment of clinic fees to local physicians. Many of the states employ full-time or part-time obstetricians or pediatricians to supervise the clinics and to improve the services provided. Other states require that local physicians employed for this work must attend a short intensive course on the conduct of such clinics or conferences. As a result of the expert supervision, the special training of clinic physicians, and the improvement of clinic equipment, a higher standard of clinic service is now being rendered than heretofore. The local health departments have also found that employing the best qualified local practising physicians and dentists not only has improved the services rendered but has brought about a much better working relationship with the local professional groups.

MEDICAL AND HOSPITAL CARE

There has been an increasing realization in recent years by public health agencies that their responsibilities should not end with the provision of strictly educational and preventive health measures. It is futile to teach a mother the importance of good prenatal care unless that care is available to her, and it is often a waste of money to provide prenatal care if proper care at the time of delivery is not available. Twenty-six state health agencies are now spending part of their maternal and child health funds for medical or hospital care of maternity patients and sick children. I hope that many of you will have an opportunity to study these services in such areas as Slossfield Health Center in Jefferson County, Ala., Anne Arundel County, Md., Alger-Schoolcraft Counties, Mich., Cherokee County, Okla., and San Miguel County, N. M. From these and several similar projects we are learning how to coordinate better preventive health measures with services providing treatment under the administration of local health departments. Approximately $500,000 of maternal and child health funds are budgeted this year to pay practising physicians for case consultations, delivery care, clinic service, and care of sick children, and $140,500 is budgeted this year for hospital care of mothers and children.

PUBLIC HEALTH NURSING SERVICE

The development of public health nursing service for mothers and children is by far the largest item in all the state maternal and child health programs. More than 4,000 public health nurses are paid in whole or in part from maternal and child health funds, and this year the states plan to spend more than 5 million dollars of their maternal and child health funds for nursing services. In spite of the considerable increase in the number of public health nurses in recent years, the states reported last year that more than 1,000 counties had no public health nurses rendering any service to maternity patients. The concept of a generalized, family public health nursing service has been continually emphasized by the Children's Bureau in the development of the maternal and child health programs. We rarely see now the duplication of effort and service formerly observed when a family might be served by a school nurse, by a child hygiene nurse, by a communicable disease nurse, and so forth. The quality of individual generalized nursing service has been immeasurably improved by the state administrative plan of employing specialized nursing consultants in

maternity and pediatrics who have been responsible for advising and assisting local staff nurses in their work. We believe that the development of nursing care at the time of home delivery, and nursing visits within 24 hours of home delivery will prove to be most significant in lowering maternal and newborn infant mortality or morbidity.

NUTRITION SERVICES

Only 11 nutritionists were employed under the state maternal and child health plans approved in 1936. Four years later 27 states were employing 50 nutritionists under their maternal and child health plans. There has been a marked increase in the realization of the importance of teaching sound principles of nutrition as a basic part of any program which plans to improve the health of mothers and children.

CARE OF PREMATURE INFANTS

Reduction of the excessive mortality from premature births is a problem which has confronted all states. This problem is being met not only by providing special programs of education for the medical and nursing professions but by the establishment and maintenance in 20 state health departments this year of hospital or home facilities for the proper care of these infants.

MORTALITY RATES

If we can accept maternal and infant mortality reports as an indication of the success of our efforts to improve maternal and child health, there is much to be grateful for. There are about 10,000 mothers living in the United States today who would have died in the past 4 years if the maternal death rate of 1935 had prevailed. There are about 28,000 children living in the United States today who would have died in infancy during the past 4 years if the infant death rate of 1935 had prevailed.

If the low maternal mortality rate reported by North Dakota in 1938 had been effective for the entire United States there would have been only 5,489 instead of 9,953 maternal deaths that year. If the low infant mortality rate reported by Connecticut and Nebraska in 1938 had applied to the entire United States there would have been only 82,331 instead of 116,702 infant deaths.

The decrease in the maternal mortality rate from 1935 to 1938 among white women has been much greater than among Negro women, and in 1938 the rate for Negro women was for the first time more than twice as high as for white women (86 and 38). Measures to improve the health of Negro mothers apparently have not kept pace with those for the white population.

We have only begun to develop on a nation-wide basis the standards of health for mothers and children which are possible with the knowledge at hand and the potential resources of our country. We are now becoming increasingly aware of the need for total defense. We should be thankful that an extensive program for strengthening national health services for children has been under way for more than 4 years under the Social Security Act, for the health of our children is a vital part of our defense. It is a crucial time to protect the gains which we have made, for to lose these gains in an effort to defend them would be a tragic blunder. We should now, more carefully than ever before, scrutinize every expenditure of the maternal and child health funds and answer the question whether each service will lead to an improved health and physical fitness of the children of America. It is urgent, indeed, that we give immediate consideration to methods whereby we can extend to all communities the services which will assure a maximum of health for our next generation.

The Merit System in Relationship to Public Health Personnel

FRANK L. ROBERTS, M.D., AND BYRON HILL, PH.D.

Professor of Preventive Medicine, University of Tennessee, Memphis, Tenn.; and Supervisor of Examinations, Tennessee Civil Service, Nashville, Tenn.

THE meaning and principle of civil service have had an evolutionary growth. Originally, in the United States, the term was a generic name given to the public servants of a state employed in a civil capacity. This is still often the usage in other countries. Today "civil service" signifies several things: the legislation establishing the system; the officials administering it; those government employees appointed under the system; the procedures, methods, and technics used in the selection of such personnel; and finally the entire bundle of rights, privileges, and protections conferred upon an employee who has "civil service status." In its broadest and proper meaning it includes all of these.

There might very conceivably be a civil service system in which merit of the individual does not govern appointments and retentions; on the other hand, a merit system not based on statutory authorization would not be a civil service system. Generally and for our purpose these terms are used interchangeably to refer to a system of public personnel management in which status is based on considerations of merit and determined objectively by examinations. In some states the label is "merit system"; in Tennessee it is "civil service."

Government on the basis of personality and/or political influence with all of the attendant evils of the patronage system culminated in Great Britain in the reign of George III. This vicious system of government was one of the causes of the American Revolution. Concerning the use of patronage and the giving of important colonial positions to those favored by the administration, Trevelyan says, "It was a system which, as its one achievement of the first order, brought about the American war and made England sick, once for all, of the very name of personal government."

When our nation was established, its founders tried to avoid the evils which they saw had caused the loss to England of the colonies. That these founders intended administrative officers to hold office during good behavior is clear and unmistakable. The Constitution fixed no definite term of office in the executive branch of the government except in the case of the President and Vice-President. During the early years of our history as a nation every administration more or less held to a kind of merit system, and Madison believed that the wanton removal of a qualified public servant was an impeachable offense. Generally speaking, the personnel of the young government was selected on merit.

With the generation of partisanship and the growth of political parties the method of appointment to office

changed. In 1820 the legislative basis for the spoils system was laid in the passage of the Four Year Term Tenure of Office Act. This law was passed without debate and apparently there was little conception of what it really meant. Jefferson, Webster, Clay, Calhoun, Benton, and others condemned the law with all the force of which they were capable, but it remained. The change did not come about at once, but by 1830 the transition was nearly complete and it was an accepted conception of government that "to the victor belong the spoils."

Not only was the spoils system inaugurated by 1830, but it was extended in 1836. The original Tenure of Office Act applied only to those officers charged with the collection of revenue, but in 1836 it was amended to include all postmasters drawing more than $1,000 a year. Federal employees thus were no longer considered servants of the people, but servants of political bosses and dependent on the President in office. Political expediency dictated the appointment of civil servants, not ability or training to perform a certain task. Thus an era of spoils and corruption ensued. This period reached an ugly climax in the assassination of President Garfield in 1881 at the hands of a disappointed office seeker. It was unfortunate that such a tragedy was necessary to dramatize the evils of the patronage system; but from the death of a President came a determined public demand for an honest and efficient Civil Service.

The National Civil Service Reform League was organized in that same year 1881, a development of the New York Civil Service Reform Association which had begun in 1877. Soon the movement had grown to such an extent that Congressional action was taken in the Pendleton Act of 1883 which established the Federal Civil Service Commission. This Act was based on three fundamental principles, which were: (1) that appointments to the classified service should be by competitive examinations and there should be a probationary period before final appointment, (2) that appointments should be apportioned among the states according to population, and (3) that employees should be free from having to contribute to campaign funds or having to render political service.

It has been pointed out by Klein that the rise and extension of federal and state civil service systems have taken place in three great waves and almost in 25 year cycles; these periods were 1883–1884, 1905–1915, and 1936 to the present. Interestingly enough, the growth has paralleled periods of great increase in the regulatory powers of government. Marked increases in U. S. Civil Service coverage have occurred under Cleveland, Theodore Roosevelt, Taft, Wilson, and the present President. Coverage in the federal classified service for June, 1939, was 67.7 per cent of the executive branch.

New York was the first state to establish a merit system. The New York law was passed in 1883, and in 1896 the system was written into the Constitution of that state. In 1884, Massachusetts also pioneered with a merit law. A pause occurred until 1905, when Wisconsin and Illinois passed laws; Colorado made a start in 1907, New Jersey in 1908, and Ohio, California, and Connecticut in 1913. In 1939, legislatures considered merit system proposals for either state or local governments in some 17 states. At the present time many of the states have some type of a merit law, and wherever the system has been given a sound foundation and good administration, it has proved successful.

Public health has not escaped its time serving as a football of politics. Even in this so-called enlightened period, in many states each change of

administration results in a change of health officers. It may be only a coincidence, but those states which have made the best records in health work are usually the ones which have suffered fewest turnovers in administrative officers.

Modern public health technics call for people with very special training, and this fact has kept public health in recent years from being too greatly exploited for political patronage. The public has been educated to expect well trained personnel in public health, and this has been a very powerful force in many states for assuring the public of competent service. The financial participation of the great foundations and the federal government has given added impetus to the introduction of the merit system.

There are many factors that influence qualified persons in the choice of public health as a career. We like to think that opportunity for service is the primary motivating force, but as a matter of fact people go into public health as a career from a variety of reasons. Personal interest in the subject is probably the chief motivation and personal advantages in the way of steady income, assured tenure of office, and chances for professional improvement loom large as reasons for choosing any field as a career. Opportunity for service plays a large part in the choice, but is not, in the great majority of cases, the controlling factor. It is still true that economic motives direct the activities of most of mankind.

Certainly many qualified persons will hesitate to choose public health as a career so long as that field is subject to political chance. The merit system can and will aid greatly in encouraging properly trained personnel to enter the service, and it will keep out the unfit. By assuring tenure of office, dignified treatment, and freedom from unfair political influence, the merit system will give the individual entering state employment a real chance to render service to the community, and will assure the community of continuing efficient professional service. The use of public health appointments as stepping-stones and stop-gaps to bridge over temporary financial difficulties immediately following graduation can be decreased by the introduction of an efficient and honestly administered merit system.

With these basic principles in mind, the Civil Service Examination Program recently held for the Department of Public Health in the State of Tennessee may be reviewed. We do not mean to suggest that the Tennessee program illustrates in its detail the ideal method and procedure to be followed; it does illustrate that the people of the state have decided that there shall not be the possibility of anything but merit as the measure of the men and women who, as agents of the state, administer and serve its interests in several departments.

Civil service is in its infancy in Tennessee. However, examinations for certain state personnel have been held three times before this year. Under the Wagner-Peyser Act, the federal government conducted merit examinations in 1934 and 1935 for the Employment Service, and in 1938 examinations were given by the State for the Unemployment Compensation Division, both in the Department of Labor. In 1937, Tennessee enacted its first merit system law which created the Department of Personnel; there was a special examinations unit set up for these examinations. In 1939, this Act was repealed and the present broader and more inclusive civil service system was established. The Department of Personnel is continued; an Examination Unit as a part thereof was organized in March, 1940, with a supervisor of examinations in charge under the Director of Personnel. Section 1 of the Tennessee law states its purpose:

There is hereby established for employees of this state a system of personnel administration based on merit principles and scientific methods. That system shall govern the appointment, promotion, transfer, lay-off, removal, and discipline of employees, and other incidents of state employment. Except as hereinafter specified, all appointments and promotions to positions in the State Civil Service shall be made on the basis of merit and fitness, to be ascertained by examinations. The Department of Personnel created by the provisions of Chapter II, Public Acts of 1939, shall administer the provisions of this Act and shall be charged with the duty of progressively improving its effectiveness.

A Civil Service Commission of five members is established by law in the Department of Personnel to represent the public and to advise on problems concerning personnel administration. This commission is composed of prominent business men known for their integrity. The members are appointed by the Governor for a period of years, and receive only nominal compensation for attendance upon meetings. The commission acts as a board of appeal and review for the settlement of grievances under the Civil Service System, and applicants and examinees may appeal thereto from the rating or action of the Examination Unit. The Civil Service Rules and Regulations passed by the commission supplement the law and have the effect of a part thereof.

Three departments of the state government are included in Tennessee's civil service program: The Departments of Public Health, Public Welfare, and Labor. The first civil service examinations in Tennessee were given for the technical positions in public health. The commissioners of this department had for some years maintained a very high standard of qualifications for their personnel. Public announcements for the examinations were made and applications were received in May, 1940. Most of the examinations were held the first part of June. Eligible registers were established the latter part of September, the entire program covering approximately 4½ months.

There were 5 groups of positions in the 36 technical classifications for public health, divided as follows: Medical 17, Dental 3, Nursing 5, Laboratory 5, and Sanitary Engineering 6. Approximately 325 positions were involved. The requirements of education and experience, although high, cannot be regarded as out of line with civil service requirements for such positions in other states.

The public interest in this first phase of our examination program was gratifying, considering that the program was new and that the positions were of a technical nature for which a large reservoir of qualified persons did not exist in Tennessee. As to be expected, the greatest concentration of applications came from the four urban counties, with the cities of Memphis and Nashville leading in the number of applicants. Counties from which there were few or no applicants showed a striking correspondence to those counties in which there were no full-time health units. A very high percentage of the applicants were incumbents. In the specifications, age limitations for entrance into an approved public health service ranged from a minimum of 21 years for some of the lower classifications (nursing trainee 20 years), to a maximum of 40 years for directors. Of the total applications filed, 93 per cent were accepted as meeting the minimum requirements to be admitted to the examinations.

The examinations were open, free, and competitive, but as to incumbents there was a qualifying element due to the preference given incumbents under the Tennessee Civil Service Rules and Regulations. This provision is that incumbents who make a passing grade on their examinations are certified by the director as regular employees in the classified service. The rules of the examination prescribed a minimum

grade of 70 per cent on the entire examination as the passing grade. Essay questions were used for the written examinations. Examinations and oral interviews were held in four test centers over the state: Johnson City and Knoxville for East Tennessee, Nashville for Middle Tennessee, and Memphis for West Tennessee. There were four different Examining Boards for the Medical and Dental personnel, the Nurses, the Laboratory Technicians, and the Sanitary Engineers. Ninety-four per cent of the examinations taken were passed.

Many things are learned by experience in a civil service examination. Especially remembered from the early stages of our program are the following:

1. The public in general and the personnel of state health departments must be educated to the machinery and the genuineness of civil service. There is a surprising lack of understanding as to how a merit system operates. This is true even among the best educated groups of citizens. Procedures and possibilities must be carefully explained. Everything required or done is theoretically, and should be actually, for the protection of either the applicant or the state. Since most examination programs cannot include in their budgets any item for advertising, the several professional groups included in state health departments have an excellent opportunity through their Associations, and through the medical, dental, nursing, and engineering schools, to assist in making known employment opportunities in state service and the requirements for securing such. The opportunity for coöperation is very great and the challenge for success is on both sides.

2. Procedures required of applicants should be reasonable. On the other hand, certain formalities, as in filing application, are obviously necessary and must be complied with by all alike. Examination programs should not be mysterious; forms should be kept simple; and test items ought to be practical. In any event, the rules of the program once set become as inviolable as the proverbial law of the Medes and the Persians. There can be no exceptions. Without fear or favor, the law must be administered and adhered to impartially and fairly. The public must remember and appreciate that examination officials have no discretion in the application of the requirements to individuals. When these things are done, public confidence, public interest, and public participation will be secured; and on these three depend the success of any civil service system.

3. In a civil service program for a state department of public health, the professional element involved and the technical nature of the work to be performed in such positions justify careful consideration of the type and content of examinations to be given. For most written examinations, the multiple choice type of question is preferred by a large majority of civil service technicians. Here the candidate is given a series of choices or statements in regard to a premise or subject, and asked to indicate which is the correct or most nearly correct answer. However, in the case of examinations for certain professional groups, the essay or free answer type of question may sometimes be employed. When the items are constructed and graded with the assistance of authorities and experts in these fields, with sufficient time and care exercised by the consultants, good results are possible. Certainly a physician who has been awarded his license to practise medicine by a state medical examining board need not be retested on the fundamentals of his profession. In all cases, it may be said that the higher the specialization, the more technical the field; the greater the experience and training required on the specifications, the less the emphasis that may be placed on written examinations. The federal government gives many unassembled examinations, the type where no written work is required and the candidate is rated solely on the basis of his record, sometimes supplemented by an oral interview.

4. An examination program should allow a considerable length of time for receiving applications for positions in public health work. A month to 6 weeks is advisable. This is necessary because of the publicity to be secured and the qualifications of the group to be attracted. The more technical the positions to be filled, the longer the period needed for adequate and effective recruitment. In the South it might often be necessary to go outside the state for such personnel, and this would require more than the usual time for filing.

5. In view of the demand for qualified persons in the field of public health, it is best not to require state residence in the specifications or rules for the examinations. Especially is this true where the merit system is in its beginning stages or where there have not

been examinations before. Manifestly, a residence requirement is a handicap in the obtaining of technical personnel.

6. The classification in public health departments should be relatively as few in number as possible. It is a good rule to keep the classification plan for any department as simple as can be done consistently with the variations in the general types of duties to be performed.

7. Specifications for the various positions ought to be clearly written and free from ambiguous expressions. From the standpoint of the examination program, the statement of the knowledge and ability required in the execution of the duties to be performed is all-important because upon this the examinations must be based. It is to be expected that the requirements of education and experience for most public health positions will be high.

8. Consultants and examining boards for a public health examination program must be trained in the particular fields in regard to which they are to give advice and service. A separate board for the positions in each different sub-field is highly desirable.

As we have seen, civil service means more than the selection of personnel on the basis of merit. There will follow for the Tennessee Department of Public Health the additional problems of promotion, management, and retention of personnel on the merit principle, and the maintenance of adequate registers for replacement. But with a sound law and sincere officials, there is a great opportunity for a real merit system in the home of Andrew Jackson.

Opportunities for Service

PATRIOTISM is not a matter of the military forces alone. Courage is displayed not only on the battlefield. The performance of duty, and only duty, is not the finished product of living. It is the giving of what you have to give that counts—giving it without expectation of any reward except that lift to the soul which affords one of the deepest of the satisfactions obtainable in this life. . . . Democracy depends upon this spirit. It should be working all the time and not merely in periods of crisis. The efficiency of a health department depends upon this spirit, and it must be working every day of our professional lives. Positions in our health departments are not "jobs." They are opportunities for service. By giving the best that is in us, we help to make democracy worth while—something to live for, something, if need be, to die for.—*Edward S. Godfrey, Jr., M.D.* Address before the New York State Health Officers and Public Health Nurses, June 25, 1940.

Uses of a Lauryl Sulfate Tryptose Broth for the Detection of Coliform Organisms*

W. L. MALLMANN, PH.D., F.A.P.H.A., AND C. W. DARBY, D.V.M.

Section of Bacteriology, Michigan Agricultural Experiment Station, East Lansing, Mich.

AN attempt has been made to develop improved methods of procedure for the isolation of the coliform group from water, both qualitatively and quantitatively. These studies were undertaken primarily because of the fact that, seemingly in various water supplies in various parts of the United States, organisms were passing through water purification systems that caused intestinal upsets. In many instances these water supplies were meeting all bacteriological requirements of a safe water supply. In all instances the method of bacteriological analysis was based on the standard procedure of the American Public Health Association.

Coupled loosely with these epidemics were observations by a number of workers that longer incubation periods and special technic demonstrated the presence of organisms called, for want of a better term, "slow lactose fermenters."

Darby and Mallmann [1] showed in a laboratory study that the use of a new nutrient, tryptose, caused many so-called "slow lactose fermenters" to produce gas in greater quantities in a shorter period of time. This was due to the fact that this substance with a few other chemical agents allowed a more rapid growth of the coliform organisms and also caused a larger number of the bacteria initially present to grow. Thus an enrichment medium is available that grows a higher percentage of the bacteria initially present in the water in a shorter period of time than the present standard lactose broth.

Many attempts have been made to introduce into the primary lactose broth tubes a selective agent which would prevent the growth of Gram-positive bacteria and thus make the primary presumptive tests more significant. In all cases where dyes have been used, such as crystal violet, brilliant green, fuchsin, and others, not only the Gram-positive bacteria are inhibited but a marked toxicity is also exhibited for the Gram-negative organisms. In using the selective agent in the primary medium many coliform bacteria are inhibited and lower colon indices result. The Standard Method Committee of the American Public Health Association has never accepted any of these for primary use for this reason.

* Journal Article No. 490 n.s. from the Michigan Agricultural Experiment Station. Read before the Laboratory Section of the American Public Health Association at the Sixty-ninth Annual Meeting in Detroit, Mich., October 10, 1940.

TABLE 1

The Bacteriostatic Titers of Surface Tension Depressants

Compounds	Test Organisms *	Dilutions of Compounds 1–1T	1–5T	1–10T	1–20T	1–30T	1–40T	1–50T
Aerosol — M.A.	*E. coli*	+	+	+	+	+	+	+
	Streptococcus	+	+	+	+	+	+	+
	S. aureus	+	+	+	+	+	+	+
	B. megatherium	+	+	+	+	+	+	+
Nacconol N.R.S.F.	*E. coli*	+	+	+	+	+	+	+
	Streptococcus	—	—	—	—	—	+	+
	S. aureus	—	—	+	+	+	+	+
	B. megatherium	—	—	—	—	—	+	+
Duponol W.A. Paste	*E. coli*	+	+	+	+	+	+	+
	Streptococcus	—	—	—	—	—	+	+
	S. aureus	—	—	+	+	+	+	+
	B. megatherium	—	—	—	—	—	+	+
Santomerse #1	*E. coli*	+	+	+	+	+	+	+
	Streptococcus	—	—	+	+	+	+	+
	S. aureus	—	+	+	+	+	+	+
	B. megatherium	—	—	—	+	+	+	+
Igepon T	*E. coli*	+	+	+	+	+	+	+
	Streptococcus	—	+	+	+	+	+	+
	S. aureus	+	+	+	+	+	+	+
	B. megatherium	+	+	+	+	+	+	+

* Incubation 37° C. for 48 hours

In 1938, Cowles [2] demonstrated that the addition of sodium lauryl sulphate to lactose broth gave a medium selective for the coliform group.

Before adopting sodium lauryl sulfate in these studies the writers tried a number of wetting agents with the object of selecting the best preparation. In Table 1 are presented a few compounds to show the selective properties of these preparations. It will be observed that Nacconol N.R.S.F. and Duponol W.A. Paste are equal in selectivity, both as to organisms and degree of action. It will also be observed that two other wetting agents, namely, Aerosol M.A. and Igepon T. have no selective action. In Table 2 are presented the surface tensions of these compounds. The data show that the surface tension depressing action is about the same for all of these products. It is apparent that the reduction in surface tension alone is not the cause of the selective action.

To check the toxic properties, growth curves were made to determine the effects of various concentrations of the wetting agents on the rate of growth of the coliform organisms. In Table 3 are presented the bacterial counts which were obtained. The wetting agents

TABLE 2

The Surface Tensions of Several Wetting Agents in a Tryptose Broth Base

Compound	Surface Tension in Dynes * at the Following Dilutions 1–100	1–1T	1–5T	1–10T	1–20T	1–30T	1–40T	1–50T
Aerosol A.Y.	33.37	36.66	—	—	—	—	—	—
Nacconol N.R.S.F.	36.19	36.66	37.60	37.14	38.54	40.89	41.37	44.19
Duponol W.A.	33.37	39.95	39.01	39.95	39.49	42.30	43.24	47.00
Santomerse #1	36.66	36.66	—	—	—	—	—	—
Igepon T	36.66	36.66	—	—	—	—	—	—
Base Medium	55.94	—	—	—	—	—	—	—

* Taken at 25° C. from autoclaved samples.

TABLE 3

The Effect of Surface Tension Depressants on the Growth of Escherichia Coli in a Basic Tryptose Medium

Compound	Concentration of Compound (Per cent)	Number of Bacteria per cc.			
		Initial	3 Hours	6 Hours	10 Hours
Nacconol N.R.S.F. 1-100	1	56	5,700	1,260,000	480,000,000
Duponol W.A. Paste 1-100	1	39	5,900	1,290,000	480,000,000
Base Medium *	—	67	15,700	10,200,000	1,280,000,000
Nacconol N.R.S.F. 1-10,000	0.01	64	24,200	5,860,000	990,000,000
Duponol W.A. Paste 1-10,000	0.01	78	29,500	15,020,000	1,040,000,000
Base Medium *	—	81	37,700	18,360,000	990,000,000
Bacto Formate Ricinoleate Broth		71	3,000	340,000	59,000,000

* Base medium consists of Bacto-tryptose—2%; lactose—0.5%; NaCl—0.5%; K_2HPO_4—0.4%; KH_2PO_4—0.15%; pH after sterilization—6.8%

show some toxicity at concentrations of 1:100, but at concentrations of 1:10,000 no such effect is shown. These products therefore make possible the addition of a selective agent to a primary medium without the attending toxic effects on the organisms desired.

An ideal medium would appear thus to be the tryptose lactose broth plus 1:10,000 dilutions of Duponol W.A. Paste (sodium lauryl sulfate) or Nacconol N.R.F.S.

To check the value of this medium in laboratory work the Difco Laboratories kindly supplied the base broth medium. The following laboratories collaborated in these studies: Detroit Board of Health, Water Purification Plants at Detroit, Highland Park, Wyandotte, Flint, Saginaw, and Bay City, Mich.

The same medium was used in all tests. Data were submitted to our laboratory for comparative study.

A comparison was made by testing three media in parallel, namely, standard lactose broth, lactose tryptose broth, and lauryl sulfate tryptose lactose broth. The results on tap waters for 6 plants are presented in Table 4. Using lactose broth, 238 tubes showed gas but, upon confirmation with brilliant green bile broth, only 4 tubes were confirmed. Lauryl sulfate tryptose lactose broth, on the other hand, showed gas in only 3 tubes and all of these tubes confirmed.

TABLE 4

A Comparison of Standard Lactose Broth, Tryptose Broth and Lauryl Sulfate Tryptose Broth as Primary Media for Tap Water Samples

Source of Samples	No. Tubes Tested	No. of Tubes Showing Gas			No. Tubes Confirmed		
		L.B.	T.B.	L.S.T.B.	L.B.	T.B.	L.S.T.B.
Flint	498	61	4	0	0	1	0
Wyandotte	240	25	4	0	0	0	0
Detroit-Springwells	126	16	2	0	0	0	0
Detroit W.W.P.	96	34	18	0	0	0	0
Saginaw	204	59	35	0	0	0	0
Bay City	384	43	5	3	4	3	3
Total	1,584	238	68	3	4	4	3

[1] L.B. denotes lactose broth.
[2] L.S.T.B. denotes lauryl sulfate tryptose broth.

TABLE 5

A Comparison of Standard Lactose Broth and Lauryl Sulfate Tryptose Broth as Primary Media for Tap Water Samples—Highland Park, Mich.

Period of Examination	No. of Tubes Tested	No. of Tubes Showing Gas		No. Tubes Confirmed	
		L.B.[1]	L.S.T.B.[2]	L.B.	L.S.T.B.
Mar. 6, 1939–May 28, 1939	585	59	2	0	0
May 29, 1939–Aug. 8, 1939	825	38	0	0	0
Aug. 9, 1939–Feb. 20, 1940	2,100	10	0	0	0
Total	3,510	107	2	0	0

[1] L.B. denotes lactose broth.
[2] L.S.T.B. denotes lauryl sulfate tryptose broth.

An interesting observation is the fact that only 68 tubes showed gas in tryptose broth, although no selective agent had been added. The writers are not prepared at the present time to offer any explanation of this selective action. In Table 5 are presented the data for tap water tested at the Highland Park Filtration Plant over a period of one year. These data are presented in groups to show the effect of seasonal change on the number of tubes showing gas in lactose broth that do not confirm. An examination of this table shows that of 3,510 tubes tested, 107 produced gas in lactose broth but none confirmed. In lauryl sulphate tryptose broth 2 tubes showed gas but failed to confirm. These data are very similar to the ones presented from the various laboratories in Table 4.

When comparative tests were made on polluted raw water the results were slightly different. For example, in Table 6, which shows a comparison of the tests at Flint, Saginaw, and Detroit, it will be observed that 454 tubes showed gas in lactose broth of which only 32 failed to confirm. On the other hand, 469 tubes showed gas in lauryl sulfate tryptose broth and 43 failed to confirm. As judged by these data, it would appear that the latter medium fails to hold back organisms which are not members of the coliform groups. In all cases confirmations were made with brilliant green bile lactose broth.

Because of the failure for confirmation on tubes from raw water our study with the various plants was discontinued until further information could be obtained. In order to determine the type of organisms which were failing to be inhibited by the lauryl sulfate, Mr. Dahljelm of the Highland Park Filtration Plant kindly consented to send us tubes of lauryl sulfate tryptose broth that failed to confirm on either eosin-methylene-blue agar or brilliant green bile broth. As soon as these tubes were received at our laboratory they were plated on various media to isolate the

TABLE 6

A Comparison of Standard Lactose Broth, Tryptose Broth and Lauryl Sulfate Tryptose Broth as Primary Media for Polluted Raw Water Samples

Source of Sample	No. Tubes Showing Gas			No. Unconfirmed Tubes		
	L.B.	T.B.	L.S.T.B.	L.B.	T.B.	L.S.T.B.
Flint	193	211	212	3	16	20
Saginaw	98	91	91	2	1	3
Detroit-Springwells	83	85	85	21	18	17
Detroit-W.W.P.	80	83	81	6	6	3
Total	454	470	469	32	41	43

[1] L.B. denotes lactose broth.
[2] L.S.T.B. denotes lauryl sulfate tryptose broth.

organisms present. Various typical colonies were picked and transferred to suitable media for examination. In all instances where tryptose lactose broth was used we were able to isolate from these tubes members of the coliform group. In the following tables, a number of such samples are reported. In Tables 7, 8, 9, and 10, samples which failed to confirm in lauryl sulfate tryptose broth are reported. It will be observed that in each instance members of the coliform group were isolated from tubes which failed to confirm on either brilliant green bile broth or E.M.B. agar.

TABLE 7

A Comparison of Standard Lactose Broth and Lauryl Sulfate Tryptose Broth on Raw Water—Highland Park, Mich., July 5, 1939—9 A.M.

		Amounts of Water Tested									
		10 cc.		10 cc.		10 cc.		10 cc.		10 cc.	
Medium	Incub. Time	Gas	Conf.	Gas	Conf.	Gas	Conf.	Gas	Conf.	Gas	Conf.
Lact. broth	24 hr.	0		0		0		0		0	
	48 hr.	0		10	—	0		50	—	0	
L.S. Tryp. broth	24 hr.	0[1]		0		0		0[2]		0[3]	
	48 hr.	5	—	5	+	5	+	10	—	10	—

[1] Aerobacter
[2] Aerobacter
[3] Aerobacter

TABLE 8

A Comparison of Standard Lactose Broth and Lauryl Sulfate Tryptose Broth on Raw Water—Highland Park, July 7, 1939—3 P.M.

		Amounts of Water Tested									
		10 cc.		10 cc.		10 cc.		10 cc.		10 cc.	
Medium	Incub. Time	Gas	Conf.	Gas	Conf.	Gas	Conf.	Gas	Conf.	Gas	Conf.
Lact. broth	24 hr.	0		0		0		0		0	
	48 hr.	10	—	10	—	0		30	+	0	—
L.S.T. broth	24 hr.	0		0[1]		0		0[2]		0[3]	
	48 hr.	0		4	—	0		10	—	10	—

[1] Aerobacter
[2] Not checked
[3] Aerobacter

TABLE 9

A Comparison of Standard Lactose Broth and Lauryl Sulfate Tryptose Broth on Raw Water—Highland Park, July 10, 1939—9 A.M.

		Amounts of Water Tested									
		10 cc.		10 cc.		10 cc.		10 cc.		10 cc.	
Medium	Incub. Time	Gas	Conf.	Gas	Conf.	Gas	Conf.	Gas	Conf.	Gas	Conf.
Lact. broth	24 hr.	0		0		0		0		0	
	48 hr.	0		10	—	0		0		0	
L.S.T. broth	24 hr.	0[1]		0		0[2]		0		0	
	48 hr.	10	—	10	+	10	—	10	+	30	+

[1] Escherichia
[2] Aerobacter

TABLE 10

A Comparison of Standard Lactose Broth and Lauryl Sulfate Tryptose Broth on Raw Water—Highland Park, July 7, 1930—3 P.M.

		Amounts of Water Tested									
		10 cc.		10 cc.		10 cc.		10 cc.		10 cc.	
Medium	*Incub. Time*	*Gas*	*Conf.*	*Gas*	*Conf.*	*Gas*	*Conf.*	*Gas*	*Conf.*	*Gas*	*Conf.*
Lact. broth	24 hr.	0		0		0		0		0	
	48 hr.	10	—	10	—	0		30	+	0	
L.S.T. broth	24 hr.	0		0[1]		0		0[2]		0[2]	
	48 hr.	0		5	—	0		10	—	10	—

[1] Aerobacter
[2] Not checked
[3] Aerobacter

These observations demonstrated that apparently the confirmatory media either caused the organisms to lose their ability to ferment lactose or inhibited these organisms from growing. It also demonstrated that in many instances tryptose broth will allow organisms to grow and produce gas that otherwise failed in lactose broth.

In order to follow through more closely the results which might be obtained from the two methods under study, a laboratory procedure was set up for checking the water samples submitted to our laboratory. Due to the amount of work necessary in the confirmations which we made it was impossible to ask any of the water purification plants to carry on this type of survey.

In each instance the sample of water was plated in parallel on standard lactose broth and lauryl sulfate tryptose broth. At the end of the 48 hour period for gas formation, E.M.B. agar plates were smeared from all tubes showing gas on both media. After the proper incubation of these plates, observations were made for the type of colony. If typical colonies were not obtained, atypical colonies were fished and planted to lactose broth and tryptose lactose broth for confirmation. If gas failed to appear in the lactose broth tubes, transfers were then made to the tryptose broth. The selected results are presented in Table 11 for lactose broth with confirmation on E.M.B. agar plates, followed by checking the

TABLE 11

Comparative Confirmation Tests by Parallel Plantings from E.M.B. Plates to Standard Lactose Broth and Tryptose Broth

Sample No.	*Gas in 10 cc. Portion Lact. Broth*					*E.M.B. from Lact. Broth*					*Lact. Broth from E.M.B.*					*Trypt. Broth from E.M.B.*					*Trypt. broth from Lact. Broth*				
	1	*2*	*3*	*4*	*5*	*1*	*2*	*3*	*4*	*5*	*1*	*2*	*3*	*4*	*5*	*1*	*2*	*3*	*4*	*5*	*1*	*2*	*3*	*4*	*5*
43	3	3	3	3	—	+[*]	+	+	+		—	—	—	—		10	20	20	10	—	+	+	+	+	
44	5	3	3	3	—	+	+	+	+		20	—	—	—		30	30	20	15			+	+	+	
46	20	3	1	1	1	E[1]	+	+	+	—		2	—	—			30	5	—					+	
65	1	5	5	3	5	+	+	+	+	+	—	2	2	—	—	10	10	—	5	5	+	+		+	+
89	3	3	3	3	3	+	+	+	+	+	—	—	—	—	—	10	20	10	5	5	+	+	+	+	+
95	60	90	40	70	90	A[2]	Cl.[3]	+	+	E			—	—				2	40				+	+	
96	40	15	30	10	40	+	Cl.	Cl.	Cl.	Cl.	—					—					—				
104	20	50	40	—	—	+	+	+			—	—	—			10	4	3			+	+	+		
140	—	3	3	3	5		+	+	+	+		—	—	—	—		3	5	3	5		+	+	+	+
187	2	—	10	—	2	+		A			—				—	3				3	+				+
261	50	50	50	50	—	E	+	+	+			—	—	—			3	3	2			+	+	+	

[*] + indicates atypical colonies.
[1] E indicates typical Escherichia colonies.
[2] A indicates typical Aerobacter colonies.
[3] Cl. indicates presence of Clostridia.

TABLE 12

Comparative Confirmation Tests from Lauryl Sulfate Tryptose Broth by Parallel Plantings from E.M.B. Plates to Standard Lactose Broth and Tryptose Broth

Sample No.	Per cent Gas in 10 cc. Lact. Broth					Per cent Gas in 10 cc. L.S.T. Broth					E.M.B. from L.S.T. Broth					Lact. Broth from E.M.B.					Trypt. Broth from E.M.B.				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
43	3	3	3	3	—	5	5	5	5	5	+*	+	+	+	+	—	—	—	—	3	10	10	10	10	10
44	5	3	3	3	—	5	5	—	10	5	+	+		+	+	10	2		—	2	30	30		25	25
46	20	5	1	1	1	5	5	5	10	5	+	A[1]	+	+	+	—		—	1	2	1		2	2	5
65	1	5	5	3	5	10	10	40	40	—	A	+	A	E[2]			—					5			
89	3	3	3	3	3	5	5	5	5	5	+	+	+	+	+	—	—	—	—	—	5	5	5	30	30
95	60	90	40	70	90	40	3	—	—	—	+	E				—					10				
96	40	15	30	10	40	—	—	—	—	—															
104	20	50	40	—	—	3	2	2	—	—	+	+	+			—	—	3			3	3	3		
140	—	3	3	3	5	5	5	5	5	3	+	+	+	+	+	—	3	3	10	10	1			70	20
187	2	—	10	—	2	—	5	5	—	—		+					—	—			1	3			
261	50	50	50	50	50	—	—	5	10	—			+	A				—				2			

* + indicates atypical colonies.
[1] A indicates typical Aerobacter colonies.
[2] E indicates typical Escherichia colonies.

colonies on lactose broth and tryptose lactose broth. It will be observed from these data that many instances have appeared wherein atypical colonies on E.M.B. agar plates obtained from lactose broth failed to produce gas in lactose broth. When transferred to tryptose broth, gas was produced in considerable quantities. Furthermore, when negative lactose broth tubes were transferred to tryptose lactose broth, gas production was obtained. These data thus confirmed the observations made at Highland Park that E.M.B. and brilliant green bile cannot be used as confirmatory media if it is desired to obtain confirmation on all coliform organisms which appeared in lactose broth. In Table 12 are presented the results for parallel planting of the samples shown in Table 11 on lauryl sulfate tryptose broth. It will be ob-

TABLE 13

Comparative Colon Indices Obtained by Parallel Plantings by Standard Methods and Lauryl Sulfate Tryptose Broth

Sample No.	Stand. Methods		L.S.T. Broth Method		
	Gas Index	Confirmed Index	Trypt. Broth Conf.	Gas Index	Trypt. Broth Conf.
43	8	0	8	10	10
44	8	2	8	8	8
46	10	2	6	10	10
49	4	0	0	0	0
65	10	4	8	8	8
75	2	0	2	0	0
89	10	0	10	10	10
95	10	4	4	4	4
96	10	0	0	0	0
103	2	0	2	6	6
104	6	0	6	6	6
140	8	0	8	10	10
187	6	2	4	4	4
200	10	0	4	10	10
230	2	2	2	2	2
234	6	2	6	8	8
261	8	2	8	4	4
Average	7.05	1.3	5.0	5.9	5.9

served that the same picture obtained as in the case of the lactose broth, except that a higher incidence of coliform organisms was obtained. It will also be observed that gas production was not obtained in the lauryl sulfate tryptose broth when coliform organisms were not isolated by the confirmation technic used.

In Table 13 are presented comparative colon indices obtained by parallel planting by standard methods and lauryl sulfate tryptose broth. It will be observed that the gas indices obtained in standard broth are much higher than the confirmed indices obtained by confirmation through E.M.B. agar and lactose broth. Where tryptose broth confirmation was made, the colon indices obtained compare favorably with the gas indices made from the standard lactose broth. The colon indices obtained from the parallel planting in the lauryl sulfate broth by confirmation in tryptose broth were the same as the gas indices obtained in this medium.

These data show that the confirmatory media used at the present time in standard methods act as suppressing agents to the coliform organisms and produce a lower colon index than would be obtained if more suitable confirmatory media were used.

These data also indicate that in lauryl sulfate tryptose broth gas production could serve not only as a presumptive test but also as a confirmatory medium for routine testing. It has been our observation that, when gas is produced in lauryl sulfate tryptose broth, confirmation is always obtained. These data should be checked further in routine laboratories, but until a satisfactory confirmatory medium for checking gas production in lauryl sulfate tryptose broth is developed, the results obtained would not check with those obtained in this research.

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Secondary Attack Rates in Pneumonia

A Study of 13,500 Household Contacts *

EDWARD S. ROGERS, M.D., F.A.P.H.A., MORTON ROBINS, AND MARGARET G. ARNSTEIN, R.N., F.A.P.H.A.

Director, Bureau of Pneumonia Control; Assistant Statistician; and Consultant Public Health Nurse; State Department of Health, Albany, N. Y.

IT is generally believed that pneumonia is a disease of definite but restricted communicability. There is a limited amount of published data concerned either with the prevalence and distribution of pneumococcus types in clinical pneumonia and among various population groups, or with the study of institutional or community epidemics. Multiple cases in households have been described.[1] The report of the "Medical Commission to investigate the causes of the increasing prevalence and fatality of acute respiratory diseases in New York City" in 1905 [2] refers to the frequency of known previous contact with pneumonia among 1,347 hospitalized pneumonia patients and interprets these data in relation to the communicability of this disease. Gilman and Anderson,[3] in 1938, studied "pneumococcus infection" in an epidemic area and calculated a crude secondary attack rate for the population exposed. However, there appear to be no studies on familial or household aggregations in which the secondary attack rate has constituted the basic method of analysis.

The following study † deals with the household aggregation of pneumonia in a sample population taken from 22 counties in New York State, as observed for varying periods between January 1, 1937, and December 31, 1939.

The selection of areas to be studied was determined largely by the adequacy of the nursing staff of the district or county health offices. The sample so obtained may be compared, with respect to certain basic characteristics, to the population from which it was drawn, namely, New York State exclusive of the cities of New York, Buffalo, Rochester, Syracuse, and the state institutions. This population is referred to subsequently as the "state in general." The sample areas are scattered well over the state, but are disproportionately rural, having 66 per cent of their population in communities of under 10,000 in contrast to 59 per cent so located in the larger group. There is close similarity between the age incidence and case fatality from pneumonia reported from both, although the pneumonia morbidity and mortality rates for the sample, during

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† From the Bureau of Pneumonia Control, Division of Communicable Diseases, New York State Department of Health. This study was, in part, supported by grants-in-aid from the Metropolitan Life Insurance Company and the Commonwealth Fund of New York City.

the period 1937–1939, are somewhat lower. Similarly, the general and infant mortality rates for the sample areas are slightly lower, suggesting more favorable health conditions. The morbidity and mortality experiences of the sample areas, during the 3 years of study, showed the same trends with respect to the previous 5 year experience of these areas as were observed for the state in general.

Households were admitted to the study upon receipt, at the district or county health office, of a pneumonia case report * which indicated an index case with date of onset within the time limits of the study. As promptly as possible thereafter, the first investigation visit was made by a public health nurse who made out the household roster and obtained other identifying data for the record form. The household remained in the study until the completion of an interval of 28 days without onset of a further case. At the end of this interval, the nurse completed the record.

Thirty-nine hundred and fifty-seven index pneumonia cases were reported from the sample areas and are included in the study with the following exceptions:

Patient lived alone or in rooming house, hotel, school or institution	294
Patient hospitalized prior to onset of pneumonia	179
Attending physician did not wish family visited (in 30 instances because of death of patient)	62
Incomplete data (52 families moved from study areas)	63
Premises found vacant or admission refused	32
Accident or operation preceded onset of pneumonia	28
Not investigated for other reasons	14
Total excluded	672

After the above exclusions, there remain 3,285 index cases, each of which served to introduce a household into the study. In these households there were 13,490 individuals, exclusive of nurses temporarily in the household in a professional capacity. Each of these 13,490 individuals had a minimum contact period of 1 day or a maximum of 28 days.†

Although the term "pneumonia" as used in this study includes an unknown complement of reported pneumonias other than acute pneumococcus pneumonia, the data presented are not separable in this respect.

There were 111 secondary cases. Eighty-five households had 1 secondary case, 10 households had 2, and 2 households had 3 each.

The definition of secondary case employed requires that both the index case and the subsequent case be reported to the Department of Health as pneumonia by the attending physician.‡ The secondary attack rates given have reference to the total household aggregation of pneumonias about the index cases rather than to cases strictly secondary to them. This broader inclusion seems indicated because of the possible importance of both cases and carriers in household infection. Accordingly, 11 "multiple primary" cases with onsets on the same day as that of the index cases in the 10 households from which they came, have been included among the so-called secondary cases.

The crude secondary attack rate of 8.2 per 1,000 household contacts

* In New York State, pneumonia (all forms) is reportable by law.

† In order to simplify presentation the secondary attack rates have been calculated as direct ratios between secondary cases and contacts at risk. Because there were 524 household contacts and 111 secondary cases who either were not in the household or not exposed for the full 28 days, calculations of the rates in terms of person-days of exposure were made for several tables. However, this method did not introduce sufficient correction to justify the more elaborate procedure involved.

‡ Twenty-one cases of apparent pneumonia discovered by the investigators were excluded by this definition. Of these, 9 were the first cases in their households.

TABLE 1

Index Pneumonia Cases by Clinical Classification, Household Contacts, Secondary Cases and Secondary Attack Rates per 1,000 Household Contacts per 28 Days According to Age Group

Age Group	Index Cases			Total Household Contacts	Secondary Cases	Secondary Attack Rate per 1,000 Contacts
	Broncho	Lobar	All Forms *			
Under 10	680	511	1,227	3,308	54	16.3
10–19	112	191	317	2,779	7	2.5
20–39	160	289	475	3,925	19	4.8
40–59	220	336	570	2,380	20	8.4
60 and over	381	300	696	888	11	12.4
Unknown	...	...	...	210	..	....
All ages	1,553	1,627	3,285	13,490	111	8.2

* "All forms" includes 105 index cases of pneumonia, unspecified form.

(Table 1) is subject to variation according to the age of the contact, being highest at both extremes and tending to follow a U-shaped curve not unlike that for pneumonia morbidity. The crude rate is not materially different for urban or rural areas defined as communities of over or under 10,000 population respectively.

The high rate found among contacts under 10 years of age cannot be attributed to the concomitant household occurrence of measles or whooping cough with complicating pneumonia,

TABLE 2

*Reported Mean Pneumonia Morbidity Rates per 1,000 Population per 28 Days, New York State * and Secondary Attack Rates per 1,000 Household Contacts per 28 Days According to Age, 1937–1939*

Age Group	New York State *			Study Group			
	Mean Annual No. Reported Cases (1937–39)	Mean Annual Morbidity Rate per 100,000 Population †	Mean Morbidity Rate per 1,000 Population per 28 Days †	Number Household Contacts ‡	Number Secondary Cases	Secondary Attack Rate per 1,000 Contacts per 28 Days	Expected Number Secondary Cases = (4) x (5)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Under 10	3,923	527.4	0.405	3,360	54	16.1	1.361
10–19	1,242	144.8	0.111	2,823	7	2.5	0.313
20–39	2,102	145.0	0.111	3,987	19	4.8	0.443
40–59	2,675	233.3	0.179	2,418	20	8.3	0.433
60 and over	3,484	645.1	0.495	902	11	12.2	0.446
All ages	13,426	283.4	0.217	13,490	111	8.2	2.996

* New York State exclusive of New York City, Buffalo, Rochester, Syracuse, and state institutions

† Based upon estimated population as of July 1, 1938 (4,737,649)

‡ Includes 210 contacts of unknown age which are distributed by age group

Determination of age-adjusted secondary attack rate:

$$\text{Expected incidence per 1,000 contact population} = \frac{2.996 \times 1{,}000}{13{,}490} = 0.222$$

$$\text{Age-adjustment factor applicable to secondary attack rate} = \frac{0.217}{0.222} = 0.97748$$

$$\text{Age-adjusted secondary attack rate} = 8.2 \times 0.97748 = 8.0$$

$$\text{Ratio of: } \frac{\text{age-adjusted secondary attack rate}}{\text{general morbidity rate}} = \frac{8.0}{0.217} = \frac{37}{1}$$

$$\text{Ratio of: } \frac{\text{observed secondary cases}}{\text{expected secondary cases}} = \frac{111}{2.996} = \frac{37}{1}$$

TABLE 3

*Reported Mean Pneumonia Morbidity Rates per 1,000 Population per 28 Days, New York State * and Secondary Attack Rates per 1,000 Household Contacts per 28 Days by Month, 1937–1939*

	*New York State **		*Study Group*			
Month †	*Mean Number Reported Cases 1937–1939*	*Mean Morbidity Rate per 1,000 Population per 28 Days ‡*	*Number Household Contacts*	*Number Secondary Cases*	*Secondary Attack Rate per 1,000 Contacts per 28 Days*	*Expected Number Secondary Cases = (3) x (4) x Age Adjustment of Factor ****
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Jan.	1,973	0.377	2,366	21	8.9	0.913
Feb.	1,813	0.384	2,350	27	11.5	0.923
Mar.	1,853	0.354	2,086	21	10.1	0.755
Apr.	1,584	0.313	1,474	12	8.1	0.472
May	1,181	0.225	934	6	6.4	0.215
June	806	0.159	473	1	2.1**	0.077
July	510	0.098	348	2	5.8**	0.035
Aug.	389	0.074	211	2	9.5**	0.016
Sept.	430	0.085	352	0	0.0**	0.031
Oct.	725	0.138	568	3	5.3**	0.080
Nov.	873	0.172	767	6	7.8	0.135
Dec.	1,289	0.245	1,561	10	6.4	0.391
Total	13,426	0.217	13,490	111	8.2	4.043

* New York State exclusive of New York City, Buffalo, Rochester, Syracuse and state institutions

† Month refers to month of report of cases in general population and the month of onset of the index case in study group.

‡ Monthly rates are based upon estimated mean population as of the 15th of each month, 1937–1939. Total rate is calculated upon estimated population as of July 1, 1938.

** Secondary attack rate not statistically significant (rate is less than twice its own standard deviation)

*** Age-adjustment factor is 1.02304 which is the reciprocal of age-adjustment factor derived from Table 2

Determination of age and season-adjusted secondary attack rate:

$$\text{Expected incidence rate per 1,000 contacts} = \frac{4.043 \times 1{,}000}{13{,}490} = 0.299$$

$$\text{Age and season-adjustment factor applicable to secondary attack rate} = \frac{0.217}{0.299} = 0.72575$$

$$\text{Age and season-adjusted secondary attack rate} = 8.2 \times 0.72575 = 6.0$$

$$\text{Ratio of: } \frac{\text{age and season-adjusted secondary attack rate}}{\text{general morbidity rate}} = \frac{6.0}{0.217} = \frac{28}{1}$$

$$\text{Ratio of: } \frac{\text{observed secondary cases}}{\text{expected secondary cases}} = \frac{111}{4.043} = \frac{28}{1}$$

since only 3 cases of measles and no cases of whooping cough were encountered among the 54 secondary cases in this age group.

Comparison between the risk of contracting pneumonia observed among persons exposed through household contact for a maximum of 28 days, with the risk of pneumonia morbidity in the state in general for a similar period of time shows an age adjusted * secondary attack rate of 8.0 per 1,000 contacts for the former, in contrast to a general morbidity rate of 0.217 per 1,000 population for the latter (Table 2). The crude risk of pneumonia following exposure in an infected household is approximately 37 times the risk in the population at large. However, both the general and secondary attack rates ob-

* The procedure used to adjust the secondary attack rate by age in Table 2 and subsequent tables is similar to that described by Raymond Pearl for "adjusted death rates (A)" in *Medical Biometry and Statistics*, Saunders, 3rd ed., 1940, pp. 270–274.

TABLE 4

Interval Between Onset of Index Case and Secondary Case According to Clinical Classification of Index Case

Days from Onset of Index Case to Onset of Secondary Case	Clinical Classification of Index Case: Number of Secondary Cases			Clinical Classification of Index Case: Per cent of Total Sec. Cases			Cumulative Per cent
	Broncho	Lobar	All Forms *	Broncho	Lobar	All Forms *	All Forms *
0	7	4	11	12.9	7.7	9.9	9.9
1	5	2	7	9.2	3.9	6.3	16.2
2	6	9	15	11.1	17.3	13.6	29.8
3	2	6	8	3.7	11.5	7.2	37.0
4	1	9	12	1.9	17.3	10.8	47.8
5	4	5	9	7.4	9.6	8.1	55.9
6	3	2	5	5.6	3.9	4.5	60.4
0– 6	28	37	67	51.8	71.2	60.4	60.4
7–13	15	11	26	27.8	21.2	23.4	83.8
14–20	6	2	10	11.1	3.8	9.0	92.8
21–27	5	2	8	9.3	3.8	7.2	100.0
Total	54	52	111	100.0	100.0	100.0	100.0

* Includes 5 secondary cases in which clinical classification of index case was unspecified.

served are subject to appreciable and independent seasonal fluctuation. The contact population in the study group was disproportionately large during the months of greatest risk, whereas the distribution of the general population remained almost constant during each month. Therefore, the secondary attack rate must be adjusted for seasonal variations in the contact population at risk before proper comparison may be made between the total rates for the two groups. Such adjustment reduces the secondary attack rate from 8.0 to 6.0, and the ratio of risk from 37:1 to 28:1 (Table 3).

There is a marked concentration of risk for household contacts in the first week following the onset of the index case during which 60.4 per cent of the secondary cases occurred (Table 4). This tendency to concentration of risk in the first week appears more marked among the household contacts of lobar pneumonia than among those in contact with bronchopneumonia. Furthermore, it can be estimated that the average risk to contacts during this period is approximately 60 times the average risk in the general population.

The time distribution of secondary cases throughout the 28 days of ob-

TABLE 5

Median Interval from Onset of Index to Secondary Case According to Age of Secondary Case and Clinical Classification of Index Case

Age of Household Contact	Number of Secondary Cases According to Clinical Classification of Index Case			Median Interval in Days from Onset of Index to Secondary Case According to Clinical Class. of Index Case		
	Broncho	Lobar	All Forms *	Broncho	Lobar	All Forms *
Under 5	24	13	38	2.3	3.5	3.0
5–14	11	8	20	7.3	3.0	4.5
15–24	3	2	5	6.5	3.0	6.5
25–44	9	11	22	16.5	6.5	10.0
45–64	5	11	17	9.3	4.9	5.8
65 and over	2	6	8	5.0	5.0	5.0
Unknown	..	1 †	1	...	...	...
All ages	54	52	111	6.7	4.6	5.3

* Includes 5 secondary cases in which clinical classification of index case was unspecified.
† Secondary case in multiple-primary households not classifiable by age.

servation shows a trailing off during the last 2 weeks. From this it may be concluded that the arbitrarily chosen observation period of 28 days has embraced the major period of risk increased to the household contacts.

The median interval between the onset of the primary case and the onset of the secondary case varies, according to the age of the contacts, in a manner opposite to the age variation of the secondary attack rate, being longest for contacts between 25 and 45 years of age and shortest for those under 5 years (Table 5). The younger contacts, therefore, appear not only to suffer a greater risk of secondary infection, but also to contract the disease more promptly following household exposure.

The secondary attack rate does not appear to be greatly influenced by the age of the index case except for the relatively high rate for contacts of index cases between the ages of 5 and 15 years (Table 6).

There is no real difference in the secondary attack rates at all ages according to the diagnosed clinical form of pneumonia of the index case. The only significant difference between secondary attack rates of those exposed to cases diagnosed as bronchopneumonia and those exposed to cases diagnosed as lobar pneumonia, is shown among contacts of index cases 25 to 44 years of age (Table 6). The very high rate for contacts of bronchopneumonia and the contrastingly low

TABLE 6

Secondary Attack Rates per 1,000 Household Contacts According to Age and Clinical Classification of Index Case

Age of Index Case	*Clinical Class. of Index Case*	*Number Contacts*	*Number Secondary Cases*	*Secondary Attack Rate*	*Age Adjusted Secondary Attack Rate* *
Under 5	Broncho	2,454	23	9.4	8.9
	Lobar	1,405	12	8.5	8.1
	All forms	3,939	35	8.9	8.4
5–14	Broncho	996	16	16.1	15.9
	Lobar	1,811	20	11.0	10.9
	All forms	2,938	37	12.6	12.4
15–24	Broncho	230	1	4.3	4.6
	Lobar	662	5	7.6	8.6
	All forms	940	7	7.4	8.4
25–44	Broncho	475	7	14.7	14.0
	Lobar	1,321	3	2.3	2.2
	All forms	1,916	11	5.7	5.5
45–64	Broncho	583	3	5.1	5.9
	Lobar	1,340	8	6.0	6.9
	All forms	1,985	12	6.0	7.0
65 and over	Broncho	924	4	4.3	4.4
	Lobar	820	3	3.7	3.6
	All forms	1,763	8	4.5	4.5
Unknown	Broncho	....	..		
	Lobar	9	1 †		
	All forms	9	1 †		
All ages	Broncho	5,662	54	9.5	9.4
	Lobar	7,368	52	7.1	7.1
	All forms **	13,490	111	8.2	

* Adjusted to age distribution of total contact population

† Secondary case in multiple-primary household not classifiable by age of index case.

** "All forms" includes 460 contacts and 5 secondary cases among household contacts of index cases of unspecified pneumonia

TABLE 7

Secondary Attack Rates per 1,000 Household Contacts According to Clinical Classification of Index Case and by Age of Household Contact

Age of Household Contact	Clinical Class. of Index Case	Number Contacts	Number Secondary Cases	Secondary Attack Rate
Under 5	Broncho	625	24	38.4
	Lobar	740	13	17.6
	All forms	1,406	38	27.0
5–14	Broncho	1,480	11	7.4
	Lobar	1,873	8	4.3
	All forms	3,490	20	5.7
15–24	Broncho	853	3	3.5
	Lobar	1,186	2	1.7
	All forms	2,102	5	2.4
25–44	Broncho	1,655	9	5.4
	Lobar	2,073	11	5.3
	All forms	3,856	22	5.7
45–64	Broncho	723	5	6.9
	Lobar	1,091	11	10.1
	All forms	1,867	17	9.1
65 and over	Broncho	232	2	8.6
	Lobar	302	6	19.9
	All forms	558	8	14.3
Unknown	Broncho	94	..	
	Lobar	103	1 *	
	All forms	211	1 *	
All ages	Broncho	5,662	54	9.5
	Lobar	7,368	52	7.1
	All forms †	13,490	111	8.2

* Secondary case in multiple-primary household not classifiable by age

† "All forms" includes 460 contacts and 5 secondary cases among household contacts of index cases of unspecified pneumonia.

rate for those of lobar pneumonia in this group are most difficult to interpret.

When the secondary attack rates are considered according to the age of the contacts, the influence of the diagnosed clinical form of the index case becomes more apparent. The rates are found to be uniformly higher among contacts under 25 years of age who are exposed to bronchopneumonia, than among

TABLE 8

Secondary Attack Rates per 1,000 Household Contacts According to Age and Sex of Household Contact

Age of Household Contact	Number Contacts			Number Secondary Cases			Secondary Attack Rate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Under 5	687	718	1,406 *	18	19	38 *	26.2	26.5	27.0
5–14	1,810	1,680	3,490	16	4	20	8.8	2.4	5.7
15–24	978	1,124	2,102	3	2	5	3.1	1.8	2.4
25–44	1,745	2,111	3,856	6	16	22	3.4	7.6	5.7
45–64	878	988	1,867 *	10	6	17 *	11.4	6.1	9.1
65 and over	237	321	558	2	6	8	8.4	18.7	14.3
Unknown	92	119	211	1 †	..	1			
All ages	6,428	7,061	13,490	56	53	111	8.7	7.5	8.2
Age adjusted secondary attack rate **							8.7	7.5	

* Includes one secondary case in multiple-primary household not classifiable by sex

† Secondary case in multiple-primary household not classifiable by age

** Adjusted to age distribution of total contact population

those of the same age who are exposed to lobar pneumonia. The complete reverse is true for contacts over 45 years of age (Table 7). However, no special attempt was made to question, correct, or otherwise alter the clinical classification as reported by the attending physician. These data, therefore, are of value only as they relate to current terminology, and bear no established relationship to pathological or other standard basis for classification.

The secondary attack rates for all ages show practically no difference by sex, being 8.7 per 1,000 contacts for males and 7.5 for females (Table 8). The risk appears to be relatively greater for males than females between the ages of 5 and 15 years, but does not differ significantly at other ages.

The result of further analysis of the data with respect to certain of the more complex factors which also may influence the secondary attack rate, will be the subject of a future report.

Acknowledgment is made to the large group of public health nurses who obtained the initial records, as well as to the health officers who made their services available. We are particularly indebted to Dr. George H. Ramsey for the initial concept of this study as well as for valuable criticism in the preparation of the report.

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Laboratory Studies of Methods for Cleansing of Eating Utensils and Evaluating Detergents*

F. W. GILCREAS, F.A.P.H.A., AND J. E. O'BRIEN

Division of Laboratories and Research, State Department of Health, Albany, N. Y.

THE adequate cleansing and disinfection of eating, drinking, and cooking utensils is rapidly assuming a position of importance in the programs of health agencies and in the mind of the general public. On June 28, 1939, the Public Health Council of New York State amended the Sanitary Code, which applies to the state outside of New York City, by the addition to Chapter XIV of the following regulation for restaurant operation.

Regulation 3. Cleansing and disinfection of eating, drinking and cooking utensils. All eating, drinking and cooking utensils shall be so cleansed and disinfected as to be free from bacilli of the coliform group and to have a total bacterial count of not more than 100 per utensil as determined by test in a laboratory approved for the purpose by the state commissioner of health.

Studies were made to formu'ate methods for laboratory examination that could be used to determine compliance with these standards of cleanliness. A preliminary step was an investigation of cleansing procedures. As a result, it was possible to outline the basic requirements of cleansing for the restaurant workers and to establish standard technical procedures for the approved laboratories of the state. The object of this paper is to present the results of studies undertaken for the purpose of establishing a basis for the practical evaluation of cleansing agents.

PRELIMINARY STUDIES OF CLEANSING

Small drinking glasses were heavily contaminated with skim milk cultures of *Escherichia coli* and hemolytic streptococcus of serologic group A. These soiled articles were washed with an efficient detergent in water at a temperature from 100° to 120° F. and rinsed with clean water at 120° or over.

A swab technic similar to that recommended by the Subcommittee on Standard Methods for the Examination of Dishwashing Devices of the American Public Health Association was used to determine the extent of residual contamination.[1] Since it was found that both distilled water and 0.85 per cent salt solution had a destructive action on certain microörganisms, particularly streptococci, buffered dilution water prepared by adding 1.25 cc. of phosphate buffer solution to one liter of distilled water was used.†

The results of these examinations are given in Tables 1 and 2. Practically complete removal of the bacteria was secured, even when the original contaminating medium contained as high as 1,500,000 microörganisms per utensil. Subsequent sterilization by chemical

* Read at a Joint Session of the Michigan Association of Sanitarians and the Laboratory, Engineering, and Food and Nutrition Sections of the American Public Health Association at the Sixty-ninth Annual Meeting in Detroit, Mich., October 9, 1940.

† 34 grams of KH_2PO_4 dissolved in 500 cc. of distilled water, pH adjusted to 7.2 with 1M NaOH and made up to one liter with distilled water.[2]

TABLE 1

Experimental Study of Methods of Cleansing Glasses

Total Bacterial Count per Surface Area of Rim

(Test Culture, Escherichia Coli Grown in Milk; Agar Plates Incubated 48 Hours at 37° C.)

Contaminated Controls		*After Treatment*		
Number Tested	*Median Bacterial Count*	*Number Tested*	*Median Bacterial Count*	*Type of Treatment*
16	13,500	16	<1	Washed at 110° F. Rinsed at 170° F. No further treatment
12	10,500	16	10	Washed at 100° F. Rinsed at 120° F. No further treatment
12	10,500	16	2	Washed at 100° F. Rinsed at 120° F. Chlorine bath, cold
4	70,000	20	<1	Washed at 100° F. Rinsed at 120° F. Ultra-violet ray cabinet, top tray, glasses upright
8	1,500,000	20	935	No washing Cold rinse Chlorine bath, cold
12	8,400	16	226	No washing No rinsing Chlorine bath, cold
4	41,000	4	75	No washing No rinsing Ultra-violet ray cabinet, top tray, glasses upright

or physical means was thus unnecessary. Disinfection of incompletely washed utensils by rinsing with chlorine water or by exposure to ultra-violet rays was not a reliable procedure.

The study of detergency has been the object of extensive investigation,[3-7] although emphasis has been placed on the washing of textiles and metal surfaces. Detergent action is both chemical and physical, the essential properties of a detergent being wetting, or reduction of surface tension between the surface washed and the water; deflocculation of solid particles; dispersion of solid particles; emulsification of grease; solution by chemical reaction of components of the soil; and suppression of precipitation of insoluble substances such as calcium and magnesium soaps. Various qualitative and quantitative tests for these properties may be made, but the results in the present instance would be of little value because of the impracticability of interpreting them in terms of the efficiency of the entire compound. The most satisfactory test of a detergent is its demonstrated effectiveness in the cleansing of a soiled surface. Even such a test is of comparative value only. Detergent action is affected by the nature of the surface to be cleaned, the type of soil, the mineral character of the water—particu-

TABLE 2

Experimental Study of Methods of Cleansing Glasses

Total Bacterial Count per Surface Area of Rim

(Test Culture, Hemolytic Streptococcus, Group A, Grown in Milk; Blood Agar Plates Incubated 24 Hours at 37° C.)

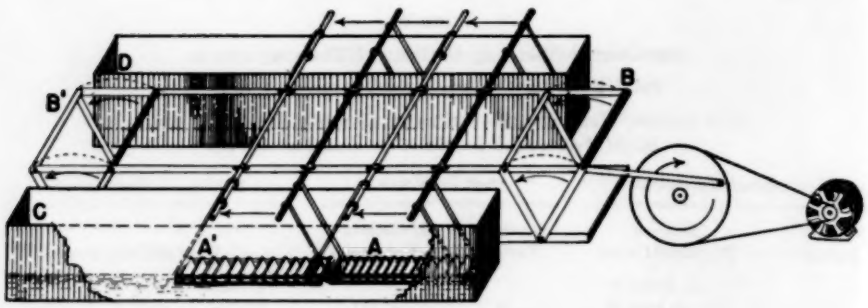
Contaminated Controls		After Treatment		
Number Tested	Median Bacterial Count	Number Tested	Median Bacterial Count	Type of Treatment
4	24,000	4	<1	Washed at 100° F. Rinsed at 120° F. No further treatment
4	24,000	4	<1	Washed at 100° F. Rinsed at 120° F. Ultra-violet ray cabinet, top tray, glasses upright
4	4,500	3	24	No washing No rinsing Ultra-violet ray cabinet, top tray, glasses upright
4	4,500	4	<1	No washing Cold rinse Ultra-violet ray cabinet, top tray, glasses upright

larly its hardness—and possibly by the temperature of the water. Detergent power is claimed for many compounds, the soaps being the most familiar and most frequently used, although alkalies and alkali salts of silicates and phosphates are also often employed, as well as sulfated and sulfonated alcohols, and softening agents such as the metaphosphates and other molecular dehydrated phosphates.

FUNCTIONAL TEST FOR DETERGENTS

In order to evaluate the various products marketed for dishwashing, a functional test was developed based on the simple method originally used in the studies of the removal of contaminated material from soiled drinking glasses. The technic is so standardized that the only variable is the detergent. The equipment is illustrated in Figure 1. Two metal tanks 19" by 6¾" by 8¼" deep, each resting on an electric hot plate, are used for the washing and rinsing operations. Instead of drinking glasses, microscope slides are employed for convenience in washing a number at one time. Twelve slides are placed ½" apart at an angle of 45° in a metal rack with perforated sides, thus permitting a free flow of water around each slide. The rack is suspended from rocker arms by free-swinging rods 9½" long so that the slides are just submerged in the water which is 1¾" deep. The rocking device is operated by an electric motor at the rate of 50 oscillations per minute through a distance of 2½". There is thus sufficient agitation for complete washing or rinsing.

Since the mineral content of the water influences the efficiency of a detergent in removing soiling materials, a synthetic medium has been employed, namely, distilled water to which calcium and magnesium chlorides are added to yield calcium carbonate hardness values of 20, 100, and 300 p.p.m.,



A, A' RACK FOR SLIDES (SUBMERGED)
B, B' SHAKING APPARATUS
C WASHING TANK WITH DETERGENT
D RINSING TANK

FIGURE 1—Washing and rinsing device

60 per cent of which is calcium carbonate and 40 per cent magnesium carbonate.

The composition of the soil is equally important; it should be representative of material adhering to unwashed utensils and yet offer no interference with the test. A typical soil should contain oil, fat, protein, and insoluble carbohydrates, and should have sufficient adhesive quality to coat the slide with an even film not removable by agitation of water alone. After compounding and studying five different soils, two prepared according to the following formulae were selected as having the most satisfactory properties for the test.

FORMULA I *(protein soil)*	FORMULA II *(greasy soil)*
50 gm. raw egg	50 gm. peanut butter
10 " peanut butter	25 " butter
10 " lard	25 " lard
10 " butter	20 " mineral oil
10 " milk	20 " xylol
Mix egg and milk thoroughly and add other ingredients in melted state. Use formula only when freshly prepared.	Melt first three ingredients, mix thoroughly, and add mineral oil and xylol.

A measure of cleanliness more precise than that obtained by visual examination of the washed and rinsed slides is necessary. Since any residual film indicates incomplete cleansing, each of the washed slides is dusted with activated carbon so that the extent of the film is sharply defined. Excess carbon is removed by suction. The slide is then placed in a photoelectric colorimeter and the intensity of a beam of light passing through it is compared with the intensity of a beam passing through a clean slide that has been treated with carbon in the same manner. Only clear, unetched microscope slides are suitable for this test and not less than 5 clean slides for controls and 5 soiled and washed slides are used to obtain median values. The ratio of the median reading of the washed slides to that of the control slides is taken as the " cleansing index " of a detergent.

TECHNIC

Prepare a synthetic wash and rinse water of known hardness by adding calcium chloride and magnesium chloride to distilled water in the ratio of 6 parts of calcium hardness to 4 parts of magnesium hardness, each expressed as calcium carbonate. Add to the

wash water sufficient detergent to yield a 0.3 per cent solution.

Use for the test only clear, unetched microscope slides prepared in the following manner: Wash in hot water using soap with hard rubbing. Rinse in hot water and immerse in xylol for 4 hours. Wash in 95 per cent alcohol and dry completely by igniting. Cool and store in a clean, dry place; handle only with clean forceps.

Dust 5 slides so cleaned with activated carbon (Aqua-Nuchar No. 2) and remove excess by suspending the slide for approximately 30 seconds in a metal flue attached to a vacuum (see Plate 1). Using a clean slide not treated with carbon, adjust the photoelectric colorimeter (Luximeter) to a reading of 100 on the light meter. Then obtain a reading in the colorimeter for each of the 5 control slides treated with carbon. Record the readings and select the median value.

Use 12 slides to test each detergent. Dip clean slides in the soil emulsion and suspend for from 3 to 5 minutes to drain. When Formula I is used, place slides in a metal rack and dry in an oven for 3 minutes at a temperature of 110° C. Do not heat slides soiled with Formula II. Remove to the washing tank and wash for 2 minutes at 120° F. Transfer to the rinsing tank and rinse in clean water at 160° F. for 1 minute. Remove and allow to dry in a dust-free atmosphere. When completely dry, dust each slide with activated carbon and remove excess by vacuum device. Record colorimetric reading for each slide. Select the median value. The ratio of the median value of the 12 test slides to that of the 5 control slides is the "cleansing index" of the detergent under the conditions of the test.

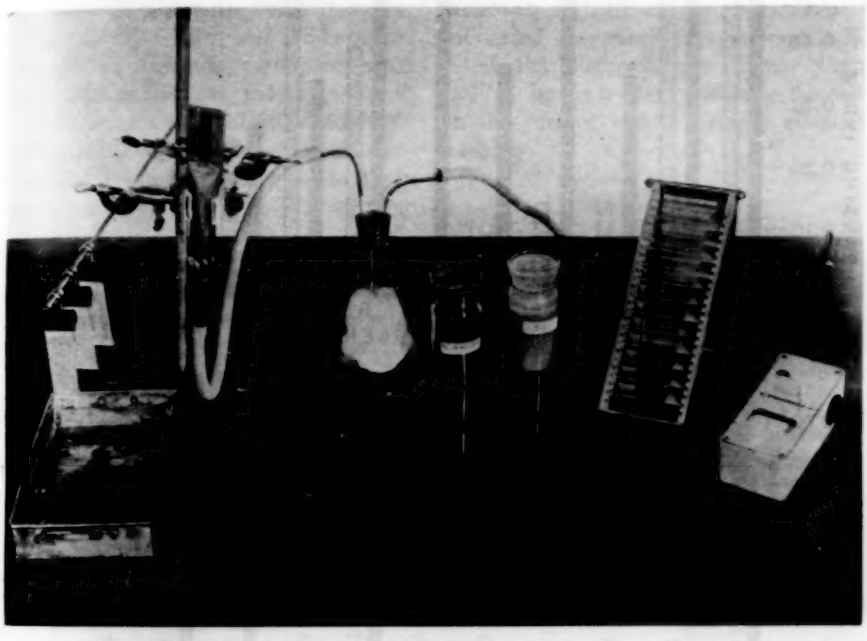


PLATE 1—Equipment and materials used in determining "cleansing index" of detergents. Shown are bottle of soil formula, slides suspended to dry after having been dipped in soil formula, metal rack containing washed slides, bottle of activated carbon, vacuum device for removing excess carbon, photoelectric colorimeter.

Thirty-six detergents, including proprietary products and basic detergent materials frequently found in use in restaurants and similar establishments, have now been studied. The tests were made both with soil Formulae I and II. Water with a hardness value equivalent to 100 p.p.m. as calcium carbonate was used, representing the average water supply in New York State, exclusive of New York City. As

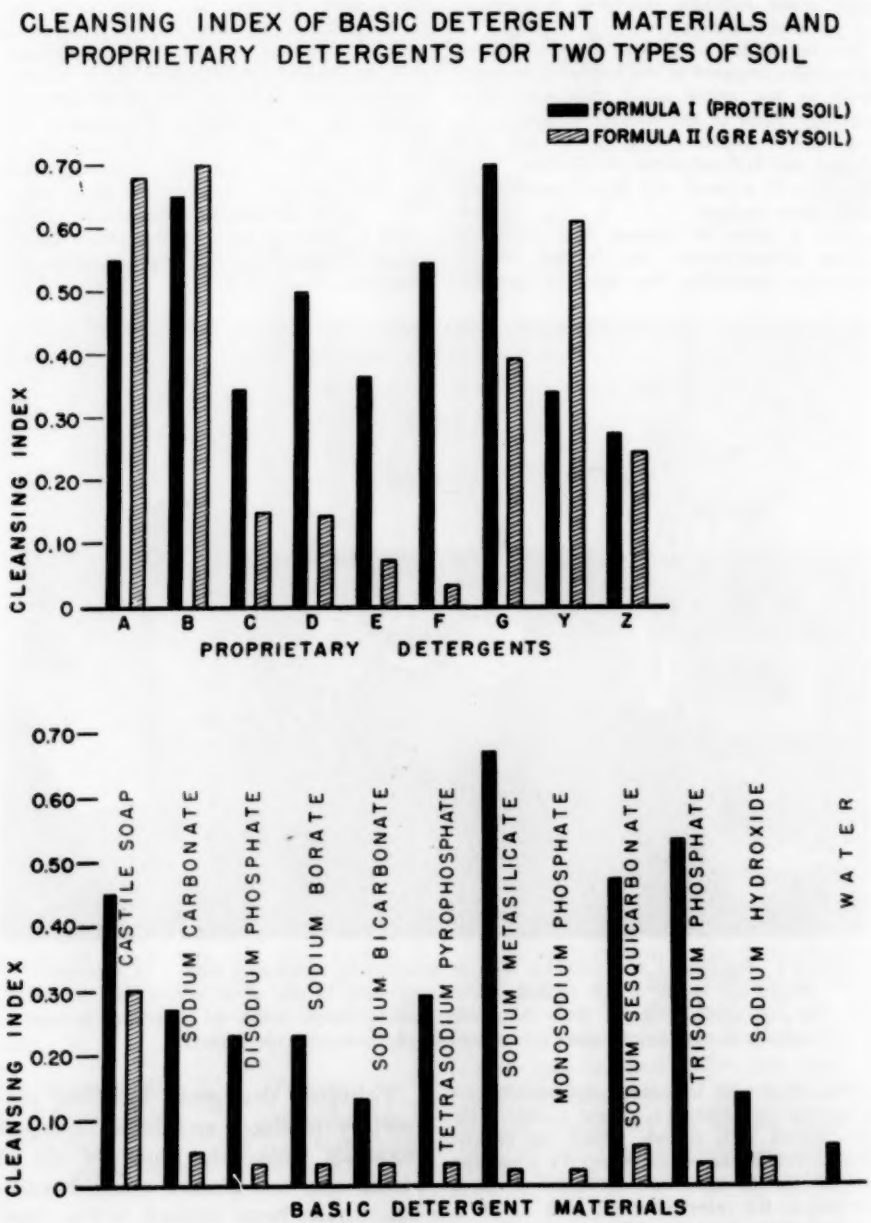


FIGURE 2—Cleansing index of basic detergent materials and proprietary detergents for two types of soil. Slides washed 2 minutes at 120° F., rinsed 1 minute at 160° F., wash and rinse waters 100 p.p.m. hardness.

a control, soiled slides were also washed in water without a detergent. Figure 2 shows the variation in efficiency of some of these commonly used products. It is interesting to note that wash water without a detergent was more effective than some of the cleansing agents.

Ten detergents from the above group, including the components of most of the common dishwashing compounds and representative proprietary products, were selected for more detailed study. Waters of 20, 100, and 300 p.p.m. hardness as calcium carbonate were used. The results are shown in Table 3 and indicate a marked difference both in the ability of these substances to remove the Formula I soil and in their effectiveness with waters of varying hardness.

Since the deposition upon a washed surface of an insoluble film resulting from interaction between a detergent and the minerals in the water is an important indication of effective washing, a test to measure film formation with multiple washing is necessary. Preliminary experiments in which unsoiled slides washed and rinsed for as many as 10 cycles in water of 100 p.p.m. hardness as calcium carbonate suggest that there is a considerable difference in the effectiveness of various detergents in this respect also. Since the film is a deposit of mineral salts, activated carbon does not adhere sufficiently to admit of photoelectric measurement as described.

No complete investigation has been made of the effect of varying temperatures of wash water on the efficiency of any of the detergent compounds studied. However, a single experiment that corroborated the general experience indicated that temperatures higher than 120° F. had a tendency to bake the soil on the surface and to hamper efficient washing.

DISCUSSION

Detergents in which wetting and emulsifying properties predominate remove oils and fats but have a limited action on protein particles, for which deflocculating and dispersing properties are essential.

Ordinary soaps are effective when used alone in soft water and provide a desirable component of other dishwashing compounds.

The alkali phosphates and silicates have satisfactory emulsifying and de-

TABLE 3

Results of Experimental Cleansing of Soiled Microscope Slides with Waters of Varying Hardness

Slides washed 2 minutes at 120° F.
Rinsed 1 minute at 160° F.

Soil-Formula I

	Cleansing Index Hardness as Calcium Carbonate		
Detergent	*20 p.p.m.*	*100 p.p.m.*	*300 p.p.m.*
Trisodium phosphate	0.61	0.48	0.23
Anhydrous tetrasodium pyrophosphate	0.37	0.29	0.40
Sodium metasilicate	0.77	0.67	0.15
Product A	0.88	0.55	0.21
Product B	0.82	0.65	0.20
Product C	0.62	0.34	0.29
Product E	0.74	0.36	0.19
Product F	0.65	0.54	0.30
Yellow soap G	1.00	0.70	0.36
Product H	0.60	0.39	0.24
Control—water alone	0.23	0.06	0.01

flocculating properties but are not sufficiently active as wetting and dispersing agents to be used alone effectively. The alkalies in general are lacking in many of the essential detergent properties and are therefore quite ineffective by themselves. The molecular dehydrated phosphates such as sodium hexametaphosphate are extremely active as dispersing and softening agents and in suppressing precipitation of insoluble calcium and magnesium compounds from hard waters, but otherwise have no detergent properties.

The sulfated alcohols exert marked wetting action as well as emulsifying power and therefore remove an oily soil effectively but are markedly less active toward solid and non-greasy soils.

The technic described does not differentiate between detergents intended for hand washing procedures and those for use in machines. Determinations of hydrogen-ion concentration were made on 0.3 per cent solutions of a few of the group studied, the results indicating that those with a pH value less than 10 had been designated by the manufacturers for hand washing, and those with higher values for machine washing. Detergents containing soap and sulfated alcohols are useful only for hand washing because of their excessive foaming properties.

Based on the data accumulated in these studies, an efficient detergent for cleansing of eating, drinking, and cooking utensils may be defined as a substance or compound soluble in water, which at a temperature of approximately 120° F. will provide complete removal of all types of characteristic soiling materials in a short period of time; will produce a free-rinsing surface; will reduce to a minimum the formation of a film of precipitated mineral salts and similar substances on the washed surface; and will function effectively in waters of varying hardness.

In the application of the test outlined to a group of 36 detergents, using soil Formula I and water with a uniform hardness of 100 p.p.m. as calcium carbonate, the median value for the "cleansing index" was 0.39, and the interquartile range was 0.27 to 0.52. Detergents showing a "cleansing index" greater than 0.5 might be classified as efficient in removing this type of soil; those with an index between 0.25 and 0.5 as of limited efficiency; and those with an index of less than 0.25 as unsatisfactory.

While these experiments have demonstrated the possibility of evaluating detergent efficiency on the basis of a functional test, there is need for the adoption of a standard technic. To this end, a critical investigation of the entire problem is essential.

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Analysis of the Present Qualifications of Public Health Nurses in the United States*

PEARL McIVER, R.N., F.A.P.H.A.

Senior Public Health Nursing Consultant, Division of Domestic Quarantine, U. S. Public Health Service, Washington, D. C.

THE public health nursing group was one of the first professional groups to define the qualifications of its members. The first "minimum qualifications for those appointed to public health nursing positions," prepared by a joint committee of the National Organization for Public Health Nursing, the American Public Health Association, and the State and Provincial Health Authorities of North America, was published in June, 1925. Since 1925, these requirements have been revised every 5 years and the Education Committee of the National Organization for Public Health Nursing is considering a revision this year.

A review of these "minimum qualifications" as published in 1925, revised in 1930, and again in 1935, shows an interesting development. Four general types of preparation for public health nursing are defined, and while the description of personal characteristics remained about the same throughout the 15 year period, academic education, basic nursing education, and public health preparation were strengthened in each successive revision. For instance, in 1925, 2 years of high school was given as a minimum for academic education. In 1930 this was increased to 4 years of high school, and in 1935 additional education on a college level was recommended.

Under basic nursing education, the 1925 requirements classified as satisfactory graduation from a school of nursing connected with a general hospital having a daily average of 30 or more bed patients and offering instruction and experience in medical, surgical, pediatric, and obstetrical nursing. In 1930 the average number of bed patients in the hospital was increased to 50. In 1935 this was increased to a daily average of 100 bed patients, or a daily average of 50 patients plus an affiliation for services not obtained in the home hospital. Emphasis on the need for experience in the care of psychiatric and communicable disease patients was also included in the 1935 recommendations.

The required preparation in public health was similarly increased at each 5 year period. In 1925 a 4 months university program of study, or 1 year of public health nursing experience under nurse supervision, was accepted as

* Read before the Public Health Nursing Section of the American Public Health Association at the Sixty-ninth Annual Meeting in Detroit, Mich., October 9, 1940.

satisfactory. In 1930 this had been increased to a 1 year program of study, or 2 years of experience under nurse supervision. In 1935 the public health requirement for the staff nurse working alone was given as a 1 year program of study plus 1 year of experience under adequate nurse supervision.

These "minimum qualifications" have always been goals to be attained within the next 5 year period. In the past, very limited information was available with regard to the actual professional preparation of all public health nurses. The National Organization for Public Health Nursing survey in 1934 gave this information for a fair sampling of the nurse population, but there was no complete picture. However, we went steadily forward, increasing the "minimum requirements," and many of us hoped that a large percentage of the public health nurses were meeting these requirements.

The use of Social Security funds for the training of public health personnel made it desirable to have an accurate picture of the qualifications of all public health nurses employed in this country.* Consequently, this year in connection with the annual census of publish health nursing, an attempt was made to secure information on some of the items usually included in a definition of public health nursing qualifications. This information was secured by the regional public health nursing consultants of the U. S. Public Health Service through the coöperation of the several state health departments, and is now available in mimeographed form from the Public Health Service in Washington.

As was previously stated, qualifications for public health nurses are usually defined under 4 general headings: (1) academic education, (2) basic professional training, (3) public health preparation and/or experience, (4) personal characteristics. In this study, information was secured on academic education and public health preparation only. It is fully recognized that the type of basic nursing education which the nurse has had, her nursing experience, and her own personality may influence the success of her work more than academic education and public health preparation. However, experience and personal traits are not easily evaluated by objective methods. Therefore, only the two factors—academic education and public health preparation—were included in this study.

Number of nurses included in study

According to the annual census of public health nursing, 20,312 public health nurses were employed by state and local health agencies on January 1, 1940.† This number is exclusive of the industrial nurses and those nurses employed by national agencies and universities. No information was secured on the qualifications of nurses from California, but excellent returns were secured from all of the other states, the District of Columbia, and the Territories of Alaska and Hawaii. Excluding California, there were 19,117 public health nurses on duty on January 1, 1940, and data on the qualifications of 17,470, or slightly more than 90 per cent, were secured. Table 1 gives the total number who were on duty and the number and per cent for whom information on qualifications was obtained.

How near are we to our present goal?

The "minimum qualifications for

* Only those nurses employed by health departments were included in the Public Health Service study of qualifications of health personnel, 1938.

† Complete information on the number of public health nurses who were on duty January 1, 1940, is available in mimeographed form from the U. S. Public Health Service, Washington, D. C.

TABLE 1

Number of Public Health Nurses on Duty January 1, 1940, by Type of Employing Agency and the Percentage for Whom Information on Qualifications Was Obtained

Type of Agency	No. on Duty Jan. 1, 1940	Information on Qualifications Was Obtained for	
		Number	Per cent of Total
All Agencies	19,117	17,470	91.3
State Agencies	825	792	96.0
Local Official			
Rural	4,134	3,960	95.8
Urban	5,038	4,595	91.2
Local Boards of Education	3,433	3,002	87.4
Nonofficial Agencies	5,687	5,121	90.5

those appointed to public health nursing positions," which in 1935 was established as the goal for 1940, included, among other items, the following specifications:

1. Graduation from an accredited high school—additional work on a college level is desirable.
2. One year of public health nursing preparation in an approved public health nursing program of study.

Of the 17,470 public health nurses included in this study, 2,652, or about 15 per cent, had not finished high school. However, 1,649, or about 9 per cent, had one or more academic degrees. This is an encouraging advance when compared with the information secured through the National Organization for Public Health Nursing survey of 1934. In that study it was found that more than 40 per cent of the staff public health nurses had not completed high school and only 2 per cent had earned academic degrees. Table 2 gives a comparison of these figures with the information obtained in 1940 for staff nurses.

The number of public health nurses who have completed one or more years of training in an approved university course of study is gratifying also when compared to the findings of the 1934 survey, but below our expectations for 1940. Of the public health nurses now on duty, only 3,907, or about 22 per cent, had completed a year or more of training, and 6,936, or about 40 per cent, had had no special preparation in the field of public health. The National Organization for Public Health Nursing survey found that about 7 per cent of the staff (or field) nurses had completed one or more years of public

TABLE 2

A Comparison of the Number of Staff Public Health Nurses Who Had Not Completed High School and the Number Who Had Academic Degrees in 1934 and 1940*

	Number of Staff Nurses in Study	Less than High School Graduation		One or More Academic Degrees	
		Number	Per cent	Number	Per cent
N.O.P.H.N. Study	822	344	41.8	20	2.4
U.S.P.H.S. Study	15,805†	2,520	15.9	1,169	7.3

* N.O.P.H.N. Survey of Public Health Nursing, p. 65—Published by the Commonwealth Fund, New York, 1934.

† The qualifications of 1,665 supervisors are not included in this table.

TABLE 3

Distribution of Public Health Nurses According to Geographic Area and Public Health Training *

Districts	Number for Whom Information Was Obtained	Number and Percentage of Nurses Who: Had Completed 1 or More Yrs. of University Public Health Nursing Work — Number	Per cent	Had Some University Public Health Work But Less than 1 Year — Number	Per cent	Had No University Public Health Nursing Work — Number	Per cent
Total, all States	17,470 †	3,907	22.4	6,624	37.9	6,936	39.7
Northeastern	7,719	1,437	18.7	2,904	37.6	3,378	43.7
South-Atlantic	1,872	294	15.7	840	44.9	738	39.4
North-Central	4,606	1,208	26.2	1,838	39.9	1,560	33.9
South-Central	2,205	361	16.4	821	37.2	1,023	46.4
Western †	1,068	607	56.8	224	21.0	237	22.2

* Industrial nurses omitted because of incomplete returns
† Exclusive of California, but includes the Territories of Alaska and Hawaii

health training and about 63 per cent had had no university preparation in the field of public health work.

Thus we have made very definite progress during the past 6 years, but we are a long way from the 1940 goal which we set for ourselves.

Variations according to type of agency and geographic area

Type of agency appears to cause less variation in the qualifications of public health nurses than does geographic location. In the Western District, which is made up of the 11 western states and the Territories of Alaska and Hawaii, 57 per cent of the public health nurses had completed one or more years of public health training in an approved university course of study. Table 3 shows the distribution according to geographic region. The North-Central District had the next highest rating with a total of 26 per cent of its public health nurses having a full year of public health training. In the Northeastern District, about 19 per cent had completed a year of training, and in the two southern districts, about 16 per cent of the nurses had a full year of public health preparation. Almost half of the public health nurses in the South-Central District (46.4 per cent) had no public health training in an approved university course of study.

For the purpose of analysis, the agencies were grouped under the following 4 headings: (1) State Agencies; (2) Local Official Agencies; (3) Local Boards of Education; (4) Nonofficial Agencies. Local official agencies were further subdivided into rural and urban because both groups were large. Boards of education and nonofficial agencies were not separated into rural and urban because there were comparatively few rural agencies in either of these groups. From Table 4 it will be seen that 40 per cent of the public health nurses employed by state agencies had completed one or more years of public health training. This is a considerably higher percentage than prevailed among any of the other groups, probably due to the fact that the state group is heavily weighted with supervisors and consultants. About 50 per cent of the nurses employed by state agencies were classified as supervisors.

TABLE 4

Distribution of Public Health Nurses According to Type of Agency and Public Health Nursing Preparation

Type of Agency	Number Nurses Included in Study	Public Health Nurses Who Had: Completed 1 or More Years of Study in an Approved Public Health Nursing Course of Study — Number	Per cent	Had No University Preparation in Public Health — Number	Per cent
Total, all Agencies	17,470	3,907	22.4	6,936	39.7
State Agencies	792	320	40.4	270	34.1
Official					
Rural	3,960	1,172	29.6	1,214	30.7
Urban	4,595	659	14.1	2,303	50.1
Boards of Education	3,002	587	19.2	1,166	36.6
Nonofficial Agencies	5,121	1,169	22.8	1,983	38.7

Urban official agencies, with but 14 per cent of their staffs having a year or more of public health training, appeared to be the least well prepared.

If supervisors are excluded, the county public health nurses, or those employed by rural official agencies were found to be the best prepared. Almost 30 per cent of this group had completed one or more years of training and the group was largely made up of staff or field nurses.

When academic education is considered with relation to geographic location, it is found that the Northeastern District had the highest percentage of nurses who had not completed high school (22.5), and the highest percentage of nurses with academic degrees (11.5). Conversely, the South-Central District had the lowest percentage of nurses who were not high school graduates (7.3 per cent), and the lowest percentage of college graduates (3.7 per cent).

A comparison of the number of nurses who had academic degrees by type of agency shows that state agencies were highest with a percentage of 17.9. Of the agencies where staff or

TABLE 5

Distribution of Public Health Nurses According to Type of Agency and the Number with Academic Degrees

Type of Agency	Number Nurses Included in the Study	Public Health Nurses with Academic Degrees — Number	Per cent
Total, all Agencies	17,470	1,649	9.4
State Agencies	792	142	17.9
Local Official			
Rural	3,960	431	10.9
Urban	4,595	182	4.0
Boards of Education	3,002	277	9.2
Nonofficial Agencies	5,121	617	12.5

field nurses predominate, the nonofficial agencies had the largest percentage of nurses with degrees (12.5 per cent). The urban official agencies had the lowest percentage of nurses with degrees (4.0).

Qualifications of Supervisors

Of the 17,470 public health nurses included in this study, 1,665 were classified as supervisors, directors, or consultants, making 1 supervisor to slightly less than 10 staff nurses for the country as a whole. However, when checking the number of supervisors in a given type of agency against the number of staff nurses in that classification, it is found that the number of staff nurses per supervisor varies from a little less than 7 in the nonofficial agencies, to 47 per supervisor in the boards of education. Many of the rural health departments had no full-time local nursing supervisors but depended upon the state health department for advisory nursing service. There were 3,755 staff nurses employed by rural official agencies, and these same agencies reported 205 full-time supervisors, making an average of 18 staff nurses per supervisor if no credit is given for supervision from the state agencies. In most states, the major part of the time of state supervisors is devoted to the rural official agencies. Therefore, it would seem fair to combine the states and rural official groups to obtain a ratio of the number of nurses per supervisor in rural areas. When such a combination is made, it will be found that there were 594 supervisors to 4,150 state and rural staff nurses, or approximately 1 supervisor or consultant to each 7 staff nurses.

From this analysis it appears that the nonofficial agencies had the lowest percentage of staff nurses per supervisor (6.9 per cent). The state and rural official agencies had about the same average (7.0 per cent). Urban health departments had an average of 1 supervisor to each 12 nurses, and boards of education had only 1 supervisor to more than 40 nurses, even when the 5 full-time state supervisors of school nursing are added to the supervisors employed by local boards of education.

On the basis of academic degrees and public health preparation of the supervisors, the state and rural supervisors appear to have had more preparation than any of the other groups, although

TABLE 6

Distribution of Public Health Nursing Supervisors According to Type of Agency, Public Health Preparation, and Academic Education

		Supervisors Who Had Completed			
		1 or More Yrs. Study in an Approved University Course of Study		*One or More Academic Degrees*	
Type of Agency	*Number Supervisors in the Study*	*Number*	*Per cent*	*Number*	*Per cent*
Total, all Agencies	1,665	955	57.4	480	28.8
State Agencies	393	260	66.2	118	32.3
Local Official					
Rural	205	141	70.0	80	39.0
Urban	353	146	41.4	63	17.8
Boards of Education	63	25	39.7	14	22.2
Nonofficial Agencies	651	383	58.8	205	31.5

the supervisors in nonofficial agencies are only slightly lower. The supervisors in urban official agencies and in boards of education had about the same amount of public health preparation. Table 6 gives the distribution of supervisors according to type of agency, academic training, and public health preparation.

SUMMARY AND CONCLUSIONS

Public health nurses have made excellent progress in raising professional standards. However, they have not attained the 1940 goal established for themselves 5 years ago.

County nurses, or those employed by official agencies in rural areas, are the best prepared group from the standpoint of academic education and public health training. The nurses employed by official agencies in urban areas have the least preparation. The nurses in the western states have more preparation than those in any other section of the country. Oregon leads all of the states in that about 85 per cent of its public health nurses have had one or more years training. However, there are states where less than 5 per cent have had a year of public health training.

A good staff education program is considered essential to the efficiency of any organization, and such a program is usually dependent upon a satisfactory number of qualified nursing supervisors. From the standpoint of the number and the qualifications of the supervisors, the nonofficial agencies and the rural official agencies appear to be in the lead.

While only two aspects of public health nursing preparation — general education and public health preparation—have been considered in this paper, health administrators agree that these two requirements are fundamental. Therefore it is recommended that the several state health departments keep up-to-date information on public health nursing qualifications. It is further recommended that nationwide analyses be made at least every 5 years to ascertain the relationship between the recommended standards and their attainment.*

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* A loan exhibit is available from the National Organization for Public Health Nursing, 1790 Broadway, New York, N. Y., showing how personnel data may be kept up-to-date for easy periodic reviews.

Setting up New Minimum Qualifications for Public Health Nurses*

DOROTHY DEMING, R.N., F.A.P.H.A.

General Director, National Organization for Public Health Nursing, New York, N. Y.

AT the first meeting to organize the National Organization for Public Health Nursing, held on June 7, 1912, in Chicago, Miss Lillian Wald presented a report which, after recommending the organization of the National Organization for Public Health Nursing, stated, "The committee recommends that certain standards be upheld and recommended to all organizations employing visiting nurses." Thus, almost the first words of our sponsors, the national committees, and our members, concerned standards of appointment of public health nurses.

For some years after this, the N.O.P.H.N. membership requirements seem to have determined the standards of desirable qualifications for positions and in 1923 and 1924 there came an event which started the organization on its career of recommending minimum qualifications for appointment to positions and for the first time the statement set standards in advance of the minimum qualifications required for membership in the N.O.P.H.N. This event was the publication of two studies, The Study of Nursing and Nursing Education in the United States, commonly known as the Rockefeller or Goldmarck Report, and the report of the Committee on Municipal Health Department Practices in 83 cities, of which Dr. C.-E. A. Winslow was chairman.

On re-reading the report, now 16 years old, one is impressed with the far-seeing vision of its comments and recommendations. Thus we find the statement, "It is obvious that such a calling as public health nursing demands in the first place a high degree of national capacity and, in the second, a sound and broad education." It mentions also the need for more public health nurses but points out that "the best hope lies in no shortsighted efforts to turn out large numbers quickly." † The chief weakness noted in public health nursing was lack of good clinical preparation in the fundamental education of the nurse and her lack of knowledge of teaching methods and social work. Today we continue to find these same lacks though we may use somewhat different words in describing them.‡

The report points out too that fully a quarter of the nurses whose quality

* Read before the Public Health Nursing Section of the American Public Health Association at the Sixty-ninth Annual Meeting in Detroit, Mich., October 9, 1940.

† Excerpt from a paper by Ruth Houlton, Not Just Any Nurse, Please, presented at annual meeting of Pennsylvania State Organization for Public Health Nursing, October 25, 1939.

‡ See *Survey of Public Health Nursing*. Commonwealth Fund, New York, N. Y., 1934, p. 17.

of work ranked average or below in the informal classification used by the study, might have made a different showing had they not been handicapped by poor policies of management in the agencies by which they were employed. It was the Goldmarck report also that recommended that every public health nurse undertake a postgraduate program of study in public health nursing. The N.O.P.H.N. began its assistance, advice, and approval of such programs of study in the years following this important report.

A milestone in progress was passed in 1936 when the U. S. Public Health Service and the U. S. Children's Bureau accepted these basic qualifications for public health nurses appointed to positions affected by federal funds—on the state, county, and local levels. This recognition and the continued acceptance of these standards by the A.P.H.A. have greatly strengthened their position and influence.

Since 5 year revisions of our qualifications have become more or less traditional, the N.O.P.H.N. is now in the throes of revising the minimum qualifications for 1940–1945. Briefly, the machinery has been this: The Education Committee of the N.O.P.H.N. appointed a Subcommittee on Revision of Minimum Qualifications on which the following groups were represented: employers, directors of programs of study, vocational placement secretaries, the U. S. Public Health Service, the U. S. Children's Bureau, official and nonofficial agencies. Miss Leah Blaisdell is its chairman. To help the committee the N.O.P.H.N. Statistical Department sent out circular letters to representative agencies to find out how completely staff nurses employed within the last 5 years have met the present minimum qualifications—that is, those for 1935–1940. The same questions went to a few individuals in positions to know the field, and they have been asked their opinion of the desirability of raising the standards. The placement services were also asked their impressions of the trend in qualifications, and the figures compiled by the U. S. Public Health Service on the professional preparation of nurses were scanned. Thus the thinking and suggestions from representative groups have been woven into the committee's work.

The next step, after the formulation of the standards by the subcommittee and their acceptance by the Education Committee, will be referral to the A.P.H.A. Committee on Professional Education; and eventually we hope their gradual incorporation as before into the statement of the U. S. Public Health Service, the U. S. Children's Bureau, the State and Territorial Health Officers, and their actual functioning on a state and local level in both official and nonofficial agencies.

From all of this you can see that the basis for setting up the new qualifications is more than ever before—experience. And here we come to the dilemma in which a national standard-setting body like the N.O.P.H.N. always finds itself: Shall we set a minimum standard that reflects actual practice and so be able to say that a large per cent of public health nurses meet the qualifications, or shall we push up the minimum qualifications to what we think they should be, thinking of them as goals? Usually the N.O.P.H.N. compromises, keeping near enough to actual practice to be practical, high enough to make the majority stretch toward what we think is desirable.

In the study made by the N.O.P.H.N. of the questionnaires from a cross-section of public health nurses employed for staff positions within the last 5 years in all kinds of agencies, we find that only 87 per cent were high school graduates; and only 80 per cent were graduates from accredited schools of nursing. About half of the nurses

were from schools connected with hospitals having a daily average of less than 100 patients; less than two-thirds had practice in pediatric nursing, and only 28 per cent in communicable disease during their student experience. Only one-fifth of this group had completed an approved postgraduate program of study in public health nursing covering one year.*

On being asked how they felt about stiffening the requirements for appointment, the directors of many agencies frankly admitted they were not meeting the present standard so did not see how they could advocate raising it. Of 198 replying, 56 favored raising requirements, 11 lowering them, 73 maintaining present level, and 58 did not know. The standard most frequently mentioned as the one to be raised related to increasing the amount of postgraduate work in public health nursing.

On being asked if it was difficult to secure qualified nurses, 80 agencies said they had difficulty in securing nurses to meet requirements. Two-thirds of the state departments reported this. In both local health departments and local nonofficial agencies one-third of the reporting agencies said they had difficulty in securing nurses with the qualifications they had set up. Among 28 boards of education, 6 reported difficulties, 4 of the 6 saying their salaries were too low to attract the kind of nurse they wanted. By far the most frequent lack was the required public health nursing course, 36 of the 198 agencies saying they had difficulty in securing nurses who had the required programs of study.

One question asked: "How soon after employment would the nurse be expected to secure further preparation?" The time varied from 6 months to 5 years. The N.O.P.H.N. has recommended for some years that nurses applying for positions who do not meet N.O.P.H.N. qualifications be given a specified period in which to qualify—the period depending somewhat on the nurse's situation. Five years at the most would seem to be a reasonable time in which to expect a young, unprepared nurse to complete this basic preparation for her job.

With these facts in mind the Committee on Revision at the present writing is not planning to raise the 1935–1940 standards greatly in 1940–1945. We have agreed that "high school graduation which meets usual university entrance requirements should be considered necessary academic preparation." Graduation from a hospital having a daily average of 100 patients was considered essential, and it was felt that such a hospital would be expected to give basic preparation in the care of men, women and children.

We felt there should be some new classifications and that new emphasis should be placed on the use of the personal interview and various types of testing applicants. Personal qualifications play an exceedingly important part in success in public health nursing. An interest in, and ability to be readily accepted by people, as well as good physical health are of utmost importance for all types of positions. It is suggested that we put more effort on improving personal interviews and the collection of credentials through scientific study of personnel methods in other fields to help us determine more accurately the personal qualities of applicants.

The last five years have also seen the growth of merit systems as a way of selecting public personnel through open competition under nonpartisan auspices. The N.O.P.H.N. plans to formulate the new qualifications, with the present

* Houlton, Ruth. Evaluating the Effectiveness of a Public Health Nursing Service—Determining the Needs of a Community. New England Health Institute, Hartford, Conn., Apr. 15–19, 1939 (excerpts).

trend in qualifications for public health nurses employed under those systems in mind.

The new qualifications will accept 4 basic principles: (1) that the most essential requisite in public health nursing is an acceptable personality, (2) that the public health nurse must first be a competent nurse with sound basic theoretical and clinical preparation in nursing and an understanding of the social and health aspects of nursing; (3) that additional study and supervised staff experience are essential to prepare the graduate nurse for the specific functions of public health nursing; and (4) that continued in-service education is necessary to develop to the utmost the potentialities of the nurse for improved service to the family, which is the goal of all public health nursing.

Some of the questions raised by the subcommittee and by those with whom the tentative draft has been discussed are:

Should we continue to make a difference in the requirements for the nurse working alone in a rural or small town service and those for the nurse working under close supervision? I personally think we should. How much of the year's postgraduate program should be required prior to appointment (if any)? If none, then how soon should some or all of it be required? In the supervisory field should any additional theory be required? Should experience as a senior nurse or assistant supervisor be considered essential for promotion? What should be the requirements for public health nurses assuming the responsibilities of educational directors in schools of nursing? Should we require additional preparation in psychology, sociology, education, and administration for those appointed as administrators?

How to use these standards is, of course, the most vital problem of all to the N.O.P.H.N., for like all of our efforts, the qualifications mean nothing if they are not put to use. We must also remind ourselves that the only justification for qualifications at all is performance superior to that given by an unqualified nurse. We have already expressed the hope that the U. S. Public Health Service, the U. S. Children's Bureau, the American Red Cross, state departments of health, insurance company staffs, and local groups will accept these standards as their goals. The N.O.P.H.N. is concerned also to see that these standards are clear to state boards of nurse examiners, civil service commissions, schools of nursing, and private agencies.

We all have the same steps ahead of us—to create a demand for public health nursing; to interpret the qualifications of a public health nurse; to set a standard for employment; to assist in the selection of the nurse; see that she has qualified supervision; help her meet the rising standards in her own job and qualify for a position on a higher level. It is most important that lay employers understand these requirements.

It is the earnest hope of the N.O.P.H.N. that in the next 5 years we may measure more carefully than ever before the degree to which public health nurses reach these new standards, that our recommendations for 1945–1950 may be wiser! Careful employment records will go far toward helping us gauge progress. The American Public Health Association and the National Organization for Public Health Nursing are working with you toward this end of better service.

Health Maintenance in Small Industry*

R. B. ROBSON, M.D.

Walkerville, Ontario, Canada

MANY excellent articles have appeared in the last several years concerned with absenteeism by industrial workers due to occupational and non-occupational injury, sickness, and other causes. Various estimates have also been given as to the actual time lost through these factors, which may generally be expressed as 1 day per man per year lost from occupational injury or disease, and 9 days per man per year from non-occupational injuries and sickness.

At the present time there is a tremendous effort being employed in an endeavor to carry some of the modern advances in industrial medical care to the smaller industry; namely, those industries employing 500 men or less. Herewith is presented the experience, with its attendant results, of medical service in a small industry, a malleable iron foundry, employing 200 men, with an average age of 37.8 years, mainly of foreign birth, utilizing the services of a part-time general practitioner, part-time nurse, and a very modest first aid room.

The method of operation of the Medical Department is planned with 4 main considerations in mind:

1. That the Medical Department retain its professional standing.
2. That the man be treated as an individual, human entity, with skill as his contribution to the manufacturing process, with all the hopes and ambitions of an individual, with cares and joys in his private life, just as dear and real to him as those of the manager, foreman, or stockholder.
3. That the purpose of industry is manufacturing and, as such, must conform to certain fixed laws.
4. That the efforts of the Medical Department must in no way interfere with the ethical rights of physicians in private practice.

Our results, as tabulated in the accompanying chart, reveal how successful we have been in reducing absenteeism of the employee, and the concomitant saving to the man of actual money in earnings, with a likewise increased profit to the management.

PREËMPLOYMENT EXAMINATION

Though differing very little from standard practice, I believe our procedure bears repeating.

1. Preëmployment examination is conducted in a fair, thorough, unhurried manner in the physician's private office, always bearing in mind these main points:
   a. How will this employee fit the type of work he is engaged to perform?
   b. What is the present state of this employee's health?
2. A record is made of any existing, yet not disqualifying disability.
3. An x-ray examination, consisting of a flat plate of the chest, is made to reveal:
   a. Any abnormality in the heart shadow.
   b. The presence of tuberculosis, be it active or healed.
   c. The existence of silicosis in any of its stages.

* Read at a Joint Session of the Industrial Hygiene and Public Health Nursing Sections of the American Public Health Association at the Sixty-ninth Annual Meeting in Detroit, Mich., October 10, 1940.

CHART 1

COMPARATIVE STATEMENT, AUTO SPECIALTIES MFG. CO.

Year	Employees	Sickness-Hours Lost	Accident-Hours Lost	Hours Worked	No. Days Lost per Man, per Year Sickness	No. Days Lost per Man, per Year Accident	Cost of Medical Department
1936	223	4,656	1,248	233,077	2.6	0.7	$1,536.57
1937	257	4,292	2,092	390,442	2.8	1.01	$2,370.71
			Nurse Employed October, 1937				
1938	223	1,590	764	282,573	0.89	0.42	$2,039.24
1939	214	1,403	772	289,885	0.81	0.45	$2,301.77

Cost of Medical Department Includes:

Salaries	Liability Insurance
Supplies	Heat
Depreciation	Repairs
Insurance	X-ray Examinations
Taxes	Miscellaneous Expense

4. All records pertaining to the examination are kept in the physician's office, notations being made on these charts, when occasion arises, of change in type of work, or absenteeism from any cause whatsoever.

NURSE

In the event of the man being employed following his preëmployment examination, the nurse visits the home of the new employee as soon as it is convenient for her to do so without interfering with more pressing duties. This visit is made, preferably at mealtime, to ascertain:

1. The economic status of the home.
2. The number of men boarding in this home, or, if the employee be a boarder, the type of home.
3. The physical accommodations.
4. The vitamin deficiencies, should the dietary regime be the same as in the old land.

Through her visit, the nurse also endeavors to persuade the wife or housekeeper that the foundry management is interested in the physical welfare of the man and his family, for the management insists that the employee's habits of work and health are reflected in foundry output. The establishment of a sincere relationship may be of great help in time of stress, the man's attitude toward the plant being influenced in many cases by the viewpoint of the wife at home.

Once the initial visit by the nurse has been successfully handled, the idea of meddling in home affairs is lost, and it becomes apparent that subsequent visits to inquire as to the man's absence from work, to issue instructions concerning diet and special medical undertaking, receive the consideration they merit.

A record of the observations of the nurse is not kept in any stereotyped form, but in her own language, and for her own use in follow-up work in the event of sickness to the employee, and as a basis on which to plead the employee's cause before the management when necessary.

The nurse's findings are kept in her own file, not open to scrutiny of the management, and never used in time of labor strife or employer-employee difficulty.

The nurse interviews the Tuberculosis Clinic for a record of present or past infection in this employee or the other occupants of the house. Every case of tuberculosis in our city, as far as has been discovered, is recorded at the Tuberculosis Clinic and, through an efficient nursing service, records of resi-

dence are kept reasonably up-to-date. Should one of the foundry men board with a family who is under observation by the local tuberculosis board, he is tactfully shown the desirability of living elsewhere. The same procedure is followed if an employee has living with him someone who is under observation.

The great endeavor is to prevent tuberculosis rather than care for this disease once it has been discovered.

THE MAN AT WORK

No regular visits at stated hours daily or weekly are made by the physician to the foundry. The nurse, representing as she does the Medical Department, is free to call the physician at any time.

The nurse is present at the foundry only in the afternoons, her office in the first aid room being open always for dressings, re-dressings, and consultations.

Acting as a screen for many ailments of man or home, the nurse is perfectly free to refer the man to the foundry doctor if the ailment requires further study. She may go to the employee's home to see a sick child or wife, for of what value is the question, "How is the family?" if some means of response to the reply, "My wife was sick last night—I do not know whether to call the doctor or not," is not acted upon at once.

The nurse can readily tell if the patient should call the family doctor and, when she thinks medical care is needed, she telephones the family doctor, giving him a short history of the case. When the plant doctor is required to pass judgment on the seriousness of the ailment, he likewise personally refers the patient to the family doctor. In other words, the nurse and doctor endeavor to assist the employee in evaluating the seriousness of the illness and in obtaining prompt medical care.

ABSENTEEISM AND ITS CONTROL

The time card of any man absent from work is withdrawn, his name handed to the nurse. She visits his home to ascertain the cause of his absence. In case of sickness she may decide on its seriousness. In case of other reasons—sickness in other members of the family, the necessity of paying taxes, over-celebration following payday—these are tactfully handled.

As our results indicate, the number of men absent from other causes has been materially reduced since the employment of the nurse.

PERIODIC EXAMINATIONS

Periodic examinations are of prime importance in obtaining diagnosis of preventable diseases at an early stage, and are invaluable in controlling occupational disease, or in advising adjustment of occupation.

These periodic physical examinations are conducted yearly, or more frequently where circumstances demand, at the doctor's office in preference to the first aid room at the plant, because the man is clean, and there is all the dignity and thoroughness of a regular, unhurried consultation, free from the factory atmosphere. With the employee's records handy and adequately complete for making statistical and research studies at any time, the physician can readily tell the exact amount of time lost by the individual from any cause, sickness or injury, even plain "ball game" or drunkenness.

Moreover, if the physician is to receive full coöperation within the plant, these records should be kept reasonably private. Any employee may become very reticent about volunteering valuable information during the examination if he thinks the management free to peruse the records at any time they so desire.

An x-ray examination of the chest by an x-ray specialist is permitted, should

the original x-ray report demand further check, or should repeated colds, loss of weight, or other suspicious findings suggest such a procedure.

Repeat x-ray examination of the chest is made:

1. Where total foundry exposure is 5 years, and each subsequent 5 year period as a routine.
2. Where there is a request from the employee —and it is always wise to create both a desire for an x-ray examination and the privilege of having this examination.

PLANT INSPECTION

Whereas it is unnecessary for the physician to make stated visits to the plant each week, it is necessary that frequent irregular visits be made at staggered hours in order to become acquainted with different foundry practices, different occupational hazards, and to have an understanding of the different places of work by the men employed. Thereby he will become acquainted with the men and the foremen, and appreciate the meaning of "job placement."

All matters concerning the dust counts, dust control, and ventilation will be within the physician's knowledge. In this way he will always have a ready response to any particular information required by the Department of Industrial Hygiene. He is also in a position to translate the hygienic phraseology to the management and to obtain their coöperation in carrying out the recommendations.

A plant walk is made monthly with the manager in order that any scheme of betterment may be discussed on the premises and the procedure of manufacture be kept in its proper perspective.

The nurse will also make sufficient rounds of the foundry to acquaint herself with the names of the various operations and the men performing them.

COST

The cost of the first aid room, part-time nurse, part-time general practitioner, x-ray examinations as outlined, is $10 per man, per year. However, this does not include accidents, which are a separate affair, paid for directly through the Compensation Board.

An effective first aid room can be installed with a capital outlay of $300, spread over many years.

A nurse can be employed,* either full-time or part-time according to type of personnel, for a salary equal to her yearly income as a private duty nurse. If she has a flair for industrial work and adequate facilities are available, she can slowly and surely grasp the problems involved and become invaluable to her employers.

No manager with mounting taxes and a product to manufacture will employ any agency, such as a health service, from a purely humanitarian point of view if revenue from reduction in absenteeism is not produced, better and more efficient work realized, and a reduction in compensation costs strived for.

CORRELATION WITH THE MANAGER

In a plant of this size the manager knows every employee and, naturally, every manufacturing process. The nurse knows these same factors, but can also supply the home background, this being a very useful finding when periodic lay-offs occur, or actual dismissal of employees is to be considered.

The place occupied by the doctor in the organization is of great importance. Should he be placed in the same position as an ordinary employee, he will lose not only professional standing in the eyes of the workers but also the workers' respect, confidence and

* See "Desirable Qualifications of Nurses Appointed to Public Health Nursing Positions in Industry." *Pub. Health Nurs.*, July, 1939, p. 410.

trust. In order that any system of medical supervision may be satisfactory, the physician-in-charge must work directly with the head or director of the company. The absence of such an arrangement is often the reason why a full-time physician fails, where a part-time one succeeds. The latter is in a better position to resist attempts to subordinate his work in the organization.[1]

The doctor supplies the physical health background as it applies to the man's work. In this particular iron foundry we have 5 cases of moderately advanced silicosis. It is our belief that these men, as long as they are in our employ, can be carried for years at profitable work. Consequently, they are not subject to dismissal except for a most grievous cause. These men work every day and will be kept working until some intercurrent disease of the aged causes death. However, as far as possible, the employee will be protected against tuberculosis or other respiratory affections.

An understanding and interest by the physician in the problems and difficulties of industry as a whole, and the small industry in particular, are necessary. The physician must become a vital part of the organization, where, through his sincerity and honesty, he is able to interpret to the management the problems of which the manager heretofore has been afraid.

The physician again must maintain an active interest in his local medical society and, through the thoroughness of his work, fair dealing with his fellow practitioners and willingness to assume responsibility, he will leave no doubt as to the high ethical standards of practice.

The physician through his connection with other industrial physicians, with the Industrial Hygiene Department, and the Compensation Board, may acquaint his management with these various men, so that the management, in turn, will encourage the use of health maintenance in other small industries.

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Production and Standardization of Antipneumococcus Serum*

HAROLD W. LYALL, PH.D., F.A.P.H.A.

Division of Laboratories and Research, State Department of Health, Albany, N. Y.

THE effectiveness of serum therapy for pneumonias of all types, with the possible exception of III, can be considered established although experience with some types is quite limited. Chemotherapy, on account of the greater convenience and generally favorable results, has supplanted serum therapy to a large extent, but all cases do not respond promptly to such treatment. In some groups of cases on account of contraindications to the use of drugs, serum therapy is the only possible procedure. Combined chemo- and sero-therapy is now advocated by many leading clinicians for certain classes of patients. Chemotherapy exerts only a bacteriostatic action on the invading microörganism and may create an unfavorable tissue reaction. Serum therapy supplements or augments the mechanism of recovery. Practical experience is now defining the special indications for and the most effective methods of treatment. Unless a new and distinctly superior compound is discovered, it seems reasonable to expect some increase in the use of antipneumococcus sera from the present low level. In New York State, exclusive of New York City, 17,566 packages of serum of all types were distributed in 1938, 13,616 in 1939, and 6,452 for the first 8 months of 1940. The present rate of distribution is therefore approximately 47 per cent of that of the same period in the peak year of 1938.

In the 24 years since the introduction of serum therapy for pneumonia in this country, we have learned a great deal about its production, standardization, and therapeutic use. There are really only two criteria for a satisfactory antipneumococcus serum, therapeutic effectiveness and freedom, as far as possible, from reaction-inducing properties. The preparation of such a serum, however, requires long experience and thorough knowledge of the many problems connected with production, concentration, and standardization. The last 10 years have seen rapid expansion, under the impetus of pneumonia control programs, in the types and kinds of sera prepared.

In the actual production of therapeutic sera, the use of rabbits has been the outstanding advance in procedure. The selection of a satisfactorily specific and antigenic strain is the first essential. Various methods of preparing antigens for injection are employed and favored by different laboratories. We have used live cultures whenever possible for the production of type I serum

* Read before the Laboratory Section of the American Public Health Association at the Sixty-ninth Annual Meeting in Detroit, Mich., October 10, 1940.

and have considered the method for other types whose virulence or invasiveness was not such as to produce an unduly high fatality incidence in horses. Killed culture antigens, suspensions of cells in 1 per cent potassium phosphate heated at from 52° to 54° C. for ½ hour and formalin-killed cultures suspended in 0.85 per cent salt solution and heated at 75° C. for 20 minutes, have proved effective. There is some indication that these procedures, together with preliminary desensitizing doses and the injection of the culture much diluted, reduce the incidence of shock. This is an important practical problem in the immunization of horses, but not so great a factor in the production of sera in rabbits.

Whether methods of production play any rôle in the reactions that follow the administration of serum cannot be considered definitely proved. From our experience it seems probable that the serum of horses that have been under immunization for long periods may induce more reactions than that from horses during the early stages of immunization. Although the reason for this is not entirely clear, it would appear that it may be associated with the increase in water-insoluble globulins and the accompanying difficulties in concentration.

The practical application of the production of antipneumococcus sera in rabbits was a distinct advantage in many respects. It provided an economical method for the preparation of sera of types of less frequent incidence, and made available serum for other types, notably III and XIV, satisfactory preparations of which could not be produced in horses. It is questionable whether any advantage, on the basis of equivalent protective activity, can be shown for rabbit sera as compared with horse sera. Claims for the lower cost of production of rabbit sera do not appear clearly established.

Methods of purifying and concentrating serum and also of "processing" the unconcentrated serum are especially important from several angles. Undoubtedly a reduction in reaction-inducing properties can be accomplished by these procedures. With the purified and concentrated preparations it is possible to administer adequate dosage in smaller volumes. It is important that these modifications do not reduce or impair the protective activity of the material, a point which has always been a matter of concern, and that the methods of purification remove as far as possible extraneous protein fractions which are generally assumed to be the principal factors in causing reactions. However, this assumption cannot be accepted without some reservations, since it is evident that reactions are more likely to occur with sera of certain types. The method developed by Goodner [1] for the processing of unconcentrated antipneumococcus rabbit serum—treatment with heat and kaolin—has been applied to unconcentrated type I horse serum, before purification and concentration. Although heating at temperatures above 56° C. caused definite loss of protective, agglutinative, and precipitative activity, no appreciable effect on the protective activity was indicated when sera were heated for 30 minutes at 56° C. or treated with kaolin. Reports on the use of sera processed in this manner are highly encouraging from the standpoint of therapeutic effectiveness and a very low incidence of chill or shock reactions.

The standardization of antipneumococcus sera by protection tests has always been a laborious and not very precise procedure. With sufficient experience and effort, reproducible results can be obtained with sera of certain types. The application of the mouse protection method, originally developed for the standardization of type I serum, to the standardization of 16 other types

of horse sera was reported before this society in 1938. The selection of suitable strains and an optimum test dose of culture were the principal requisites. Based on the criteria of regular tests and reproducible results, tests of types I, II, IV, V, VII, VIII, IX, XI, XII, XV, and XVIII sera were found relatively satisfactory and of practical value, those of sera of types VI, X, and XX less regular but of definite value. With the strains of types XIV, XIX, and XXII studied, estimation of potency by protection tests was unsatisfactory. Protection tests of rabbit sera of all types other than XIII, XVI, XIX, XXI, XXIII, XXVII, and XXX give reasonably satisfactory and reproducible results.

The practical application of the analytical methods developed by Heidelberger and his coworkers,[2-4] in their studies of antigen-antibody systems to the standardization of antipneumococcus sera, provides another avenue of approach to this difficult problem. Studies in our laboratories have confirmed earlier evidence of the practical value of the quantitative determination of antibody nitrogen in the standardization of antipneumococcus horse sera. These studies have, in many instances, shown close correlation between the results of the precipitation method and those of protection tests. Differences have been found in tests of sera from individual bleedings and of preparations purified by different methods which will require further investigation before their significance can be determined. In tests of several pools which comprised a large number of type I sera, the protective-unit antibody-nitrogen ratio was surprisingly constant. Definite changes in the ratio occurred when sera were heated, concentrated, or heated and concentrated. It would appear that for precise and quantitative standardization a different unit value per milligram of specific N is required for each method of preparation. The practicability of such a procedure for general use appears questionable.

With rabbit serum the method has proved to be of distinct value in all preliminary standardization procedures. The ratio of mouse protective units to milligrams of antibody nitrogen has varied somewhat with the different types.

In studies of the complement fixing activity of rabbit antipneumococcus serum with the purified homologous type specific carbohydrate, it has been found that the time and temperature of fixation and the relative proportions of serum and antigen greatly influence the reaction obtained.

It has been practicable to produce univalent sera for all 30 Cooper types for distribution. With an increased number of types, particularly when some of them are quite closely related to those previously established, the necessity and advisability of producing separate univalent sera for all individual types will need careful consideration. There can be no doubt as to the wisdom of providing sharply specific diagnostic sera for identification of all recognized types, but when therapeutic sera of suitable potency for two or more related types can be produced in a single animal, the preparation of univalent sera for a considerably increased number of types would not seem necessary or economical.

Final judgment on the therapeutic effectiveness and indications for use of serum of the so-called higher types whose incidence is low has been delayed, if not completely blocked, by the advent of chemotherapy. Reliable statistics on an adequate number of proved cases of these types treated with homologous serum may never be obtained. This may not now be of practical significance.

The future of serum therapy in pneu-

monia will depend on various factors which cannot be definitely foreseen at this time. An increased incidence of drug sensitivity or of drug-fast pneumococcus strains, new methods for concentrating serum, the advent of a national emergency, a widespread epidemic with an accompanying high incidence of pneumonia—any or all of these might readily influence the use of serum treatment for pneumonia.

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The Annual Year Book will be a supplement to the March Journal

Nutrition Education in a Dental Program*

RUTH L. WHITE

Chief, Nutrition Department, Forsyth Dental Infirmary, and Special Instructor in Nutrition, Simmons College, Boston, Mass.

THE viewpoint underlying the nutrition education carried on at the Forsyth Dental Infirmary is that sound teeth can be constructed and maintained only in a healthy, well nourished body.

The foundation for this belief lies in the research laboratory of the Infirmary, where the dental structures of animals kept on deficient diets have shown a wide variety of pathological changes.[1] Control animals, on the other hand, have manifested no distinct pathology. Critical clinical examinations at the institution have supported the laboratory findings. A significant degree of correlation has been noted between the life experience and the dental states of patients. An exhaustive study of children with and without extensive caries has demonstrated striking differences between the two groups with respect to nutrition and general health.[2]

In our clinical experience, moreover, nutritional guidance appears to be a valuable agent in the control of dental caries.[3] The incidence of new caries has recently been found to be materially lower among 275 children who have had nutritional supervision than among the controls, children who likewise have been dental patients at the Infirmary, but have received no dietary advice.[4]

To us, therefore, education in nutrition becomes an important feature of the dental program for children. Supervision of nutrition is regarded not as a panacea for every dental ill, but as a means of improving the health of the entire organism, including the teeth. As in all nutrition-dental work, technical repair of the teeth accompanies the education. Although operative procedures thus play a rôle in nutritional improvement, the effect of nutritional guidance *per se* seems to us clearly apparent.

THE FORSYTH DENTAL INFIRMARY SERVICE

Patients at the Forsyth Dental Infirmary are children under 14 years of age who are financially eligible for clinical care. The Nutrition Department was organized primarily as a means of providing education for these patients and their families and for students within the institution. As the program of the department has developed, this service has been extended to other lay and professional groups.

The nucleus of the work is a clinic

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in which periodic medical and dental examinations go hand in hand with nutritional guidance. While children are referred to this clinic from all departments of the institution, the majority are selected by the dental interns who comprise our operative staff. The occurrence of extensive caries is usually the primary reason for referral. Other indications of low physical stamina in the child, however, may lead the dentist to recommend medical and nutritional care. Interns are also encouraged to refer patients whose dental condition is excellent or good, so that the history, past and present, of these children may be studied.

The second source of patients is the Orthodontia Department, which requires medical and nutrition supervision as one of its routine procedures. The stabilizing effect of nutritional guidance on the processes of growth and development is often a significant factor in orthodontic treatment.

An increasingly large number of patients are self-referred. Regardless of the child's dental condition, parents of patients under 7 years of age receive a card describing briefly the service which the Medical and Nutrition Departments offer, and giving instructions for making an appointment. It has been found that educational work for children of this early age is more constructive and more nearly preventive in character than that with older patients.

Children from 2 to 14 years of age with widely divergent physical and dental states comprise the group of patients in the Nutrition Department. Supervision is maintained by means of periodic clinic visits, which the mothers come to regard as a preventive measure in the health care of their children.

EDUCATION OF THE PATIENT

Application of the fundamental principles of nutrition to the individual situation is discussed in informal personal conferences. Although emphasis is placed upon the factors that are most intimately concerned with the health of the dental tissues—namely, calcium, phosphorus, and vitamins A, C, and D—consideration is always given to dietary requirements as a whole. Effort is directed toward the correction of physical defects and the improvement of habits which influence the utilization of food. Particular attention is devoted to the promotion of adequate sleep and rest, healthful recreation, and emotional adjustment.

A painstaking survey of the patient's history and present dietary practices precedes the nutrition instruction in every case. The teaching itself must be adapted to the intelligence and interests of each parent and child and to the nationality, economic level, and environment of the family. Various devices are used to enable the mother and older patient, as well as the nutritionist, to assess the adequacy of the diet. Graphs, photographs, charts, models, leaflets, and posters become visual aids in the teaching process. Instruction proceeds step by step, with between-visit "assignments" adapted to individual capacities. The parent and child are stimulated to evaluate their own progress by their own instruments of measurement; for, like every other health educator, the nutritionist must be an opportunist, capitalizing upon the interests, attitudes, and concerns of the patient before her.

In addition to the intensive individual supervision of children registered in the nutrition clinic, a weekly class is conducted for a group of parents. The purpose of these informal talks is to bring about better understanding of problems related to the food and health habits of children.

EDUCATION FOR THE DENTIST AND DENTAL HYGIENIST

Effective general advice on dietary

management is often given in the operative departments of the institution by dentists and dental hygienists. In this connection, another prominent feature of the nutrition program, namely, student instruction, demands consideration.

Through the educational opportunities which are offered to its interns, the Forsyth Dental Infirmary attempts to meet in part the acknowledged need of the profession for a greater understanding of the biological aspects of dental problems. A considerable proportion of the lecture course arranged for the interns is devoted to various aspects of nutritional research. The nutritionist presents the practical application of this research in discussions of the requirements of various age groups, the construction of adequate individual and family dietaries, and useful methods of nutrition teaching in the dental practice.

Student training is a valuable by-product of the medical and nutrition clinics previously described. Each intern observes the medical examinations of a considerable number of clinic patients, and has an opportunity to study the histories and progress of children whom he has referred. These experiences foster the habit of critical observation of general physical appearance as well as of oral manifestations. As the year of internship progresses, a change of viewpoint seems reflected in the phraseology of the interns' referrals to the Nutrition Department. At first their notes state merely the extent of the carious process; later they include additional comments such as, "Child seems malnourished and underdeveloped," or on the other hand, "Patient appears alert and healthy."

Participation in the nutrition conferences of the clinic helps the intern to avoid certain misconceptions that exist among the profession. Some dentists have dismissed too lightly the matter of nutrition as applied to dental problems. When casual questioning of the patient has failed to reveal a correlation between dietary habits and dental states, they have assumed that no such correlation exists. Other dentists have inquired as to the intake of only one or two foods or food groups, disregarding the fact that many elements are essential for good nutrition. Others have demanded too much from nutritional adjustment and have discarded all dietary instruction when expected results have failed to occur. In this case, nutrition has been considered as an exact science rather than as a series of physiological processes, each one complex.

During his experience in the Nutrition Department, the intern at the Forsyth Dental Infirmary begins to view nutrition problems in their true perspective. He discovers that a complete and accurate assessment of dietary practices demands a technic as specialized as his own. Skill in interviewing the patient he sees as the first step; care in recording and discernment in interpreting and evaluating the data become matters of equal importance. He finds that repeated contacts are necessary for a full understanding of the patient's mode of life. He learns that in the success of a nutrition conference artful pedagogy plays an indispensable rôle. He becomes aware of the fact that the outcome of nutrition instruction can never be foretold with precision.

The dentist who has thus become aware of the complexity of the problem will later find his knowledge of nutrition a helpful instrument in his practice. He will be qualified to give general nutritional suggestions; to coöperate with the physician in individual dietary adjustment; to acquaint his patients with dependable sources of nutrition information; and to make clinical observations which he will regard as indicative rather than absolute. These matters are well within his

province. If, in addition, he has developed a respect for the work of the nutrition specialist and a desire to cooperate with her as occasion arises, some of the major aims of the Nutrition Department have been realized.

The objectives of nutrition education for our second group of students, the dental hygienists, can be briefly defined. The hygienist's background in related sciences is less complete than that of the dentist. She can, nevertheless, acquire enough working knowledge of nutrition to contribute to her own physical efficiency and enjoyment of life. She should be able to direct her patients to authentic sources of nutrition information and to make general recommendations as to the character of their diets. At our institution, a course of 20 hours, periodic personal dietary conferences, and observation in the nutrition clinic are provided for the students. A dental hygienist with this degree of nutrition education needs to be well aware of the limitations of her knowledge. She should obtain further training if she is expected to assume specific responsibility in the field of nutrition.

COMMUNITY EDUCATION

The work thus far described is confined to the nutrition education of patients and students within the Infirmary. Following the policy of the institution as a whole, the program of the Nutrition Department has gradually developed many community activities. Especially notable is the extent to which its educational facilities are utilized by students. The department is one of the field work centers for a college course in community nutrition for home economics seniors. Students in the nutrition class of a nursery training school observe regularly in the clinic. Each year the department is visited by many additional student groups representing the professions of dentistry, medicine, public health, nursing, hospital dietetics, and teaching.

Another phase of the community activity is the variety of contacts with members of allied professions. Successful work with patients is found to be one of the most valuable means of stimulating interest in nutrition education among these groups. The dentists and school nurses who have seen the results of nutritional guidance in individual patients whom they have referred to the department are among the most enthusiastic exponents of the nutrition service.

The nutrition staff is often requested to participate in the programs of professional organizations. The recent activities of the department, for illustration, have included talks to a dental research society, a dental health conference, an institute for school superintendents, a refresher course for dietitians, and a staff meeting for school nurses.

CONCLUSION

The large number of visitors to the Nutrition Department of the Forsyth Dental Infirmary signifies the interest which its program has aroused. The frequency of requests for a description of procedures indicates that this dental-nutrition work is regarded as a pattern for other community programs. It is obvious that each new venture must be individualized sufficiently to meet the demands and opportunities of the specific situation; yet certain major policies seem fundamental to the success of any program of nutrition education in the dental field:

1. The services of a nutritionist should be regarded as indispensable. A sound, far-reaching nutrition program can be developed and maintained only through a specialist who has a thorough knowledge of the science of nutrition and technical skills in utilizing and imparting that knowledge.

2. Adequate provision should be made for training the personnel in allied fields. The members of many professional groups attempt to direct the dietary practices of the public. Well rounded training in the subject of nutrition constitutes the only safe basis for the dissemination of advice.

3. Every program of dental-nutrition education should focus attention upon the maintenance of the nutritional integrity of the individual as a whole.

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Citizens in a Democracy

WE face the probability, if not indeed the certainty, of profound changes in our way of life in America. These changes seem to be inevitable regardless of the immediate outcome of the war in Europe. They will be greatly intensified should the totalitarian governments succeed in their war of conquest and revenge. . . . We must discover and correct any existing deficiencies which may contribute to national weakness. Fundamentally any such deficiencies in this country have not depended upon any serious lack of natural resources. They exist among our human resources, our citizens of the present and of the near future. . . . Quite aside from any reference to religiosity, it has seemed to me that the spiritual aspect of our population is the one now most in need of stepping up. We have seen the spirit overcome severe physical handicaps, we have seen it overcome the difficulties of lack of educational opportunities, of poverty and environment. I speak of this not because we health workers are primarily concerned with elevating the spiritual concepts of the people to whom we give service, though that is part of our job, but because I believe it is a primary concern of ours as individuals, as citizens of a democracy, and, above all, as servants of a democracy. —*Edward S. Godfrey, Jr., M.D., New York State Commissioner of Health.* Address before New York State Officers and Public Health Nurses, June 25, 1940.

Possibilities for the Control of Syphilis with the Intravenous Drip Technic of Massive Arsenotherapy*

GEORGE BAEHR, M.D., F.A.P.H.A.

Medical Service, Mount Sinai Hospital, New York, N. Y.

WE have failed to control syphilis during the period of thirty years since the introduction of a specific chemotherapeutic agent by Ehrlich, primarily because of limitations in the technics of its administration. During this period, 50 to 80 per cent of all infected persons discontinued therapy while still in the transmissible stage of the disease because of the necessity for repeated intravenous injections at intervals of 5 to 7 days for a year or longer. Those who patiently continue treatment remain at large, capable of communicating their disease to others for weeks or months after therapy is initiated.

Massive arsenotherapy as originally conceived by Ehrlich has been tried repeatedly in the hope of shortening the period of communicability of the disease and of accomplishing a cure without the necessity for the discouragingly prolonged intermittent treatment. These attempts have thus far been unsuccessful due to the toxicity of the arsenicals when administered rapidly and in large amounts. The continuous intravenous drip technic introduced recently by Drs. Chargin, Hyman, and Leifer on my service at the Mount Sinai Hospital, New York, eliminates most of the toxicological hazards and presents the possibility of controlling the communicability of the disease in most cases within 5 days. For the great majority of infected persons who come under treatment while still in the primary or the early secondary stage of the disease, the one 5 day course of treatment is adequate to accomplish complete fading out of the Wassermann reaction and permanent elimination of all clinical manifestations.

The recent publication of a symposium on this subject [1] makes it unnecessary to recite the details. The technic consists essentially in the administration of the arsenical in 5 per cent glucose solution by means of a slow continuous intravenous drip at the rate of 30 drops a minute. The intravenous drip is continued for 10 to 12 hours a day on 5 successive days. By this means, 4.0 to 4.5 gm. of neoarsphenamine, or up to 1.2 gm. of arsenoxide (mapharsen), are administered in 5 days. No other therapy is given. Altogether, 386 patients in the primary or early secondary stage of syphilis were treated, 111 with neoarsphenamine and 275 with arsenoxide (mapharsen).

Of the first series of 25 patients treated with neoarsphenamine more than

* Read before the Health Officers Section of the American Public Health Association at the Sixty-ninth Annual Meeting in Detroit, Mich., October 18, 1940.

7 years ago, 15 are still under observation. In 13 the treatment may be considered entirely satisfactory, the blood and spinal fluid being serologically negative and the patients remaining well. One of these men became reinfected 3 years and 2 months later; he developed a new chancre at a different site on the penis after the customary incubation period following reëxposure to an infected contact. The blood Wassermann was still negative; by dark-field, spirochetes were demonstrated in the new primary lesion. No treatment was administered until the Wassermann had been observed to become 4 plus and until the typical rash and other secondary manifestations of the disease had appeared. There can therefore be no question that this represented a reinfection in a previously cured person. A similar reinfection occurred in another man after he had been well and serologically negative for 1 year and 8 months. The fifteenth patient remained well and serologically negative, except that he was reported at another hospital to have had a 2 plus Wassermann 2 years after treatment. This finding could not be confirmed by us before or since that time. If these last two instances are regarded as possible failures, the satisfactory therapeutic results exceeded 90 per cent.

Under the supervision of a distinguished committee, a second series of 86 patients with early syphilis were treated similarly with neoarsphenamine. The committee included the heads of the departments of pharmacology and of internal medicine at Columbia University, the head of the Department of Internal Medicine at Cornell Medical School, the Commissioner of Health of the City of New York and the head of the City's Bureau of Social Hygiene, a representative of the U. S. Public Health Service, the medical director of the American Social Hygiene Association, and several other experienced syphilologists and internists. Patients selected by the Health Department were treated by Drs. Hyman, Chargin, and Leifer on my service at the Mount Sinai Hospital, and on discharge the responsibility for follow-up and interpretation of the results was assigned alternately to Dr. Bruce Webster at New York Hospital and to Dr. Evan Thomas at Bellevue Hospital. At every follow-up visit blood was drawn for Wassermann and flocculation tests and duplicate samples were sent to Dr. John Mahoney of the U. S. Public Health Service and to John Koopman of the City Health Department, as well as to the laboratory of the respective hospitals. In this manner every sample of blood (and later of spinal fluid) was examined independently in three different laboratories, Dr. Mahoney and Mr. Koopman doing quantitative titrations independently.

The therapeutic results were identical with those of the first neoarsphenamine series. Of the 86 patients, 7 disappeared shortly after the treatment and 1 died. In the remaining 78 who have been followed for 2 to 2½ years, the results have been satisfactory in 71 patients, or 91 per cent. Five per cent are therapeutic failures and in 4 per cent the result is doubtful.

The toxic effects of neoarsphenamine, especially the frequent occurrence of transitory sensory disturbances (polyneuritis), and a death from hemorrhagic encephalitis persuaded the supervising committee to substitute arsenoxide (mapharsen) for neoarsphenamine. In a first series of 157 patients treated with mapharsen, the dose was experimental, 400 mg. to 1,000 mg. being administered in 5 days. Although the dosage in this series proved to be inadequate, unequivocally satisfactory results were obtained in about 80 per cent. Seventeen per cent are serological or clinical failures and the result in 4 per cent is doubtful. Most of the

failures responded satisfactorily to a second 5 day course of treatment with 1,200 mg.

In a more recent series of 125 patients with early syphilis treated with 1,200 mg. of mapharsen in 5 days, the results appear to be definitely better than in the series treated with the smaller doses. In 76 per cent the results are already satisfactory, both serologically and clinically; another 20 patients or 19 per cent, are well and in most of them the Wassermann titer is fading off but has not yet had time to reach complete negativity. From observations on the two older series, the prediction seems warranted that the majority of these patients with fading complement-fixations will soon fall into the satisfactory group, and that the final percentage can be expected to approximate that of the neoarsphenamine series.

A most important observation made both in the neoarsphenamine and the mapharsen series is that fewer failures were encountered in persons in whom the treatment was begun within 8 weeks after the appearance of the primary sore. This observation is especially significant for the military or naval services, as well as for men in industrial plants where medical care is available, especially if no disciplinary action is taken which might dissuade infected persons from reporting promptly for treatment. The majority of soldiers and sailors who develop fresh syphilitic infections come under observation soon after the appearance of the primary sore, a stage of the disease when in the great majority of instances, the 5 day treatment is in our experience adequate to assure prompt elimination of the infection and a clinical result as satisfactory as can be accomplished by 2 years of intermittent treatment.

In the mapharsen series, most of the toxic phenomena ordinarily observed in patients treated with neoarsphenamine were absent or clinically insignificant. Not an instance of so-called histamine, anaphylactoid or colloidoclastic shock was observed. Primary fevers, which occurred after the first day of treatment with neoarsphenamine in 62 per cent of the patients, followed the first day of treatment with mapharsen in 41 per cent and were milder. Secondary fevers, which occurred in 64 per cent of the neoarsphenamine cases, fell to 12 per cent with mapharsen, usually after conclusion of treatment with the appearance of a toxicoderma. Toxicoderma was seen in only 11 per cent of the patients, although it had occurred in 45 per cent of those who received neoarsphenamine.

Among the entire group of 283 patients treated with mapharsen no renal damage, no blood dyscrasias, and no instance of dermatitis exfoliativa was observed. There was also no significant liver damage, a slight transient icterus occurring in 2 patients, 0.7 per cent. Puerperal neuritis, which had been mild in 25 per cent of the neoarsphenamine patients and severe in 10 per cent, was rarely observed with mapharsen. Mild, transient paresthesia without any objective findings was detected by inquiry in only 5 out of the 283 patients, or 1.7 per cent. There were no therapeutic fatalities, although 1 patient developed frank symptoms of hemorrhagic encephalitis, 1 patient had a single convulsion while under observation, but was otherwise well and 1 patient had a brief period of transient mental confusion.

Although the clinical results in the primary and early secondary stages of syphilis are encouraging, general employment of this therapeutic technic must be postponed until there is a wider toxicological experience with the method in the hands of a large number of independent observers in well organized treatment centers throughout the country. Many such institutions in various

parts of the country are now accumulating this experience, some of them with encouragement and assistance from the U. S. Public Health Service and their state and local health departments. As control of the venereal diseases is an important part of our national defense, it is most important that these widely distributed experiences be correlated and interpreted by a central agency as rapidly as they accumulate. It would be helpful if a national committee were appointed, comprised of those syphilologists and internists who have been accumulating the largest experience with this technic, and that this committee proceed to gather the combined experience of the country on toxicology as well as on therapeutic effectiveness.*

The public health importance of this rapid form of therapy may be summarized as follows:

1. Highly infectious persons are out of circulation until treatment is completed.

2. Upon discharge from the hospital 7 or 8 days after admission, the danger of transmitting infection to others has been eliminated or reduced to a minimum.

3. Even though a patient may disappear from observation after leaving the hospital, a satisfactory result requiring no further treatment can be assumed to have been achieved in at least 80 per cent.

4. Only 10 to 20 per cent of the patients who receive a single 5 day course of intravenous drip therapy may remain a possible hazard to the community if never seen again, compared with the 50 to 80 per cent of infected persons who begin treatment with the customary intermittent technic but do not follow through.

5. The short period of hospitalization has an important educational value, which facilitates successful follow-up. Another aid in this direction is the fact that the great majority of the patients who are to be followed need be subjected to no more treatment of any kind.

6. The total treatment cost per patient is less than that of the present prolonged methods.

7. The method is probably three times as effective in controlling the spread of the disease.

If the 5 day intravenous drip technic should prove on extended trial to be no more hazardous than the present technic, public health officers may be justified in applying the rules which they already employ for the control of other communicable diseases. Beds are lying idle during large parts of the year in communicable disease hospitals and in isolation units of general hospitals. As the period of hospitalization averages 8 days, the rapid turnover makes the beds promptly available if they are required for other communicable diseases. No better use can be made of vacant hospital beds than for the prompt control of the highly communicable stage of syphilis.

* Since this paper was read, Surgeon General Parran has appointed a committee for this purpose, which will be expected to report its findings before the Section on Dermatology and Syphilis at the meeting of the American Medical Association in June, 1941.

REFERENCE

1. Hyman, Harold Thomas, Chargin, Louis, Leifer, William, and Rice, John, *et al. Arch. Dermat. & Syph.*, 42:239–284 (Aug.), 1940.

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INFLUENZA: FROM COMPLETE IGNORANCE TO A PARTIAL KNOWLEDGE

At the Sixty-ninth Annual Meeting of the American Public Health Association, Dr. F. S. Horsfall, Jr., summarized the existing knowledge of influenza. His paper was published in the November issue of the *Journal,* which went to press in October. In presenting this summary, Dr. Horsfall rendered an important and necessary service to public health and the medical profession. Among other things, he made it clear that influenza, as it occurs from time to time, is not necessarily due to a single etiological agent; that a diagnosis as to what type of influenza infection is causing the more or less classical picture in a given instance cannot be established clinically. He referred to the fact that, as a result of research in England and this country in the past decade, one specific virus has been isolated, and by the use of neutralization tests it may be determined whether the etiological agent in a particular case is this specific virus or not. Further, Dr. Horsfall reported that in a new and orderly scheme of nomenclature, agreed upon by workers at the laboratories of the International Health Division of the Rockefeller Foundation and the National Institute for Medical Research in London, this etiological agent is now known as "influenza A virus." If other influenza viruses are isolated the nomenclature scheme provides that they may be called influenza B virus, C virus, etc.

Regarding influenza A virus, Dr. Horsfall in his summary makes the following reserved and sound statement: "Although there can be almost no reasonable basis on which to doubt the evidence that this virus has caused many epidemics of influenza in the last 7 years, there is equally good evidence that this virus has not caused all epidemics of the disease during the same period."

All through this period of investigation, research workers in influenza have been exhibiting a most commendable degree of foresightedness in that, in the clearly-cut epidemics presenting the clinical characteristics of influenza, they have obtained throat washings from patients and, as a rule, have been successful in getting sera from a number of patients early in illness and in convalescence. The throat washings have been introduced into ferrets in an effort to establish and

isolate whatever virus might be causing the outbreak. The sera have been tested against influenza A virus, and in some instances the results indicate that the epidemic in question was caused by this virus. In others the convalescent serum appeared to possess no ability to neutralize influenza A virus. No whit discouraged, influenza workers put such influenza A negative sera aside and hoped for new knowledge. Now this new knowledge has come. It was brought to light by Dr. Thomas Francis and was reported in the November 1 issue of *Science*.

Francis has long been one of the outstanding research workers in the laboratory and epidemiological aspects of influenza. He has been investigating epidemics, gathering throat washings, cross checking sera and influenza A virus, and storing sera from different outbreaks. In the early part of 1940, he investigated an outbreak of acute respiratory disease at Irvington House, Irvington-on-the-Hudson, N. Y., a home for convalescent children. With throat washings he was able to inoculate ferrets successfully and to recover a virus. This virus, however, did not neutralize sera previously obtained from influenza A cases. He then checked this virus against serum obtained from patients at Irvington House. In general he found that, while serum taken from these patients early in their illness did not neutralize the new virus, convalescent serum from these same patients did neutralize the new virus.

Francis then checked this new virus against sera obtained in previous epidemics. Those sera which had neutralized the influenza A virus did not neutralize the new virus, but sera from an early 1940 outbreak in North Carolina and from a widespread epidemic of acute respiratory disease in 1936, both of which had failed to neutralize the influenza A virus, did neutralize this newly isolated virus.

Of his procedures and of this virus, Francis's summarization in part is as follows: "The immunological evidence indicates clearly that the newly isolated virus is the cause of the epidemics of acute respiratory disease in Irvington and North Carolina in 1940 and of the extensive epidemic early in 1936. These epidemics have presented no outstanding clinical features to differentiate them from the outbreaks which have yielded the virus of epidemic influenza (influenza A virus) . . ." Francis, in conformity with the new nomenclature mentioned above, will designate this new virus "influenza B virus."

This progress is encouraging to anyone who remembers the influenza pandemic of 1918. Public health workers who are fortunate in being too young for such recollections will find it interesting and profitable to go to their public libraries and study the newspaper files of the period in question. The press gives a much more colorful picture of that catastrophe than can any statistical table, for from these newspaper accounts one gets the sense of unpreparedness, of community confusion, of emergency action—and of endless funeral processions. That pandemic gained explosiveness during a war period. Just what part conditions of war play in precipitating an epidemic, no one may safely say, but past experience indicates that cantonments and prison camps, large scale troop movement, and dislocated civilian populations tend to break down isolations, perhaps resistance, and possibly contribute in some way not completely understood to an increased virulence of certain bacteria and viruses. The work of Shope, concerned with the symbiotic, immunologic, and epidemiologic relationships of *Hemophilus influenzae suis* and the virus of swine influenza, and his research in connection with shock as a factor contributing to or precipitating an influenza-like attack in swine in which the virus is latent, may throw important light upon certain aspects of this problem.

The world today faces most of the conditions with which the last devastating pandemic of influenza was associated. No one knows whether or not the experience of 1918 will be repeated in 1941. No one knows whether the etiological agent in the past epidemic was influenza A virus or influenza B virus, or some other. A vaccine against influenza A is now undergoing field trial. No vaccine has yet been reported for influenza B. We may only hope for further knowledge in the development of vaccines against epidemic influenza of whatever type, as it is from this direction that prevention and control of the disease must come. Ordinary measures of isolation and personal hygiene seem not to stem the tide of an influenza epidemic.

MUNICIPAL PUBLIC HEALTH ENGINEERING—AN URGENT SITUATION

THE American Public Health Association is officially on record for the opinion that there is a notable lack in the employment of qualified public health engineers dealing with municipal environmental sanitation. Two years ago it was pointed out that only one-quarter of the cities with populations of 50,000 or more employed public health engineers, and that even in the 37 largest cities with populations of more than 250,000, but 14 had public health engineers in their departments.

A report to the Engineering Section at the Detroit meeting bearing on this acute shortage stated that the defense program which the United States is now undertaking is already bringing a multitude of environmental health problems to the front, such as the increased use of community sanitary facilities, water supplies, sewage disposal, garbage disposal, etc., as involved in the development of military camps or new and enlarged industrial plants. New and greater problems too, connected with housing, room occupancy, insect control, food control, and industrial hygiene need to be given the timely attention of municipal health departments. The experience of cities located near great industrial operations or Army cantonments during the last war conclusively showed that engineers functioning as local municipal health engineers were of incalculable value in providing health safeguards for the Army camps, industrial plants, and the normal local population.

Appreciating the urgency of this situation, the Engineering Section of the Association has proposed that an early conference be called either by the U. S. Public Health Service or by the U. S. Conference of Mayors, on municipal sanitation as related to the current emergency. The promotion of a balanced local health department organization will require significant expansion of personnel in environmental sanitation. Specifically it is suggested that municipal health departments be considered to have a very important claim on federal funds appropriated for local and state health work, with special reference to municipal sanitation.

Federal, state, and city health officials must exhibit an active and continuing interest in municipal engineering service if these departments are to discharge fully their proper responsibilities in protecting and improving the public health, especially in the current emergency.

THE JARGON MAY GET US IF WE DON'T WATCH OUT

NEARLY everyone knows the predicament of the man who caught the bear by the tail: there was serious uncertainty as to whether he had the bear or the bear had him. A somewhat similar problem is presented in the terminology employed in a number of the sciences and near sciences related to public health. Thus, some years ago the helminthologists took a tail-grip on "worm burden," and for a while one wondered if the patient had the burden, or the worms had the patient, or if possibly the worm burden had the helminthologists. Their use of this phrase, however, does not constitute a major semantic sin: they were tempted by the blandishments of a catch phrase and they fell, but helminthologists are, after all, pretty robust scientists and we need not worry much about them.

A more serious situation is created by the etymological expeditions of the hardy prospectors who find themselves in the swamps and forests surrounding the established settlements of public health. From the enthusiasm of these pioneers one gains an impression that they have discovered a promised land, and this may be true. Unfortunately, however, they seem to have decided that as a matter of strategy they must establish vocabulary frontiers and diction blockhouses so remote from settled language usage that savages from the hinterland of lay affairs and the effete plodders of conventional public health work may never hope to invade the new domain.

Recently we picked up a paper from one of these Shangri-Las of public health. The opening sentence gave promise that the essayist would get right down to cases and make a forthright and understandable statement. Soon, however, that author grabbed the word "technic" by the tail and from then on it was anybody's fight. For our own part, we were conscious of the same urge to kill that arises when one's hostess fails to restrain her child from demanding too much attention for his new parlor trick. On further reading of the paper, however, this irritation gave place to amazement, for nouns began to take on the functions of verbs and then "learning processes," "skills," "attitudes," "situations," "levels," and "challenges" began to "motivate," "implement," "integrate." "coördinate," and "enrich" "patterns" of "culture" and "philosophy" —or vice versa.

We put that paper down with a feeling that we were losing our grip, that we had failed to keep up with the newer things, that the old and heretofore secret feeling of inadequacy was coming shamefully to light. We felt that without quibbling we must make a decision as to whether we understood this thing or not. Finally, and reluctantly, we admitted that we didn't know what the deuce the author was driving at. This admission gave rise to a new courage, and we wondered if perhaps in the tussle between the bear and the author the outcome was not a victory for the bear.

There is, of course, a place for technical terms, and in writing or speaking it is desirable to choose expressions that give just the shade of meaning one wishes to convey. But this nicety of selection is quite a different thing from the too heavy burdens and the too long hours of work that some impose upon defenseless words and phrases. Maybe we need word-burden legislation or a Society for the Prevention of Cruelty to Phrases. Otherwise, the jargon is going to get us if we don't watch out.

Credit Lines

A Selective Digest of Diversified Health Interests

D. B. Armstrong, M.D., and John Lentz, M.S.

FOR YOUR RADIO PROGRAMS

The broadcasting of health information is now a special feature that many of the nation's radio stations present regularly for their listeners. For a long time after radio made its appearance upon the American scene, health broadcasts were limited almost entirely to lectures given by well known medical and public health authorities. The information presented was reliable and worth while, but all too often the manner of presentation left much to be desired. Radio experts, however, were helpful in suggesting ways to remedy the situation. Today we are beginning to have health programs that are written by expert script writers in collaboration with medical authorities, enacted by professional casts, and dramatized with sound effects and music. In short, some good health education material is now on the air, and the "Keeping Well Radio Health Dramas" of the Baltimore City Health Department are an outstanding example of the improved work that is being done in this field.

The Baltimore City Health Department has published its "Keeping Well Series" in two volumes. The scripts are copyrighted but are now available for the use of other health agencies. About twenty dramas are printed in each volume and the charge for a single volume is $5.00. Copies of individual scripts are also offered for sale, at a cost of $1.00. These health dramas cover a variety of topics including: communicable diseases, industrial hygiene, occupational diseases, milk control, food poisoning, and maternal and child health.

Dr. Huntington Williams and his colleagues have done an expert job of blending education and entertainment in these radio dramas. The situations developed in the playlets are natural—that is, they dramatize episodes that might occur in any town, in any home. But at the same time they all contain the necessary elements of suspense and excitement. The dialogue is expertly handled and the essential health messages are put over with force and effectiveness.

Health departments in search of radio material should get in touch with the Bureau of Health Information, Department of Health, Baltimore, Md.

PNEUMONIA THERAPY

Sera for most types of pneumonia had no sooner become established in medicine's armamentarium against the disease when sulfapyridine (with related compounds) was introduced. The drug's effectiveness in the treatment of pneumonia has led to its use on a wide scale. Thus it was not long before medical circles were pondering such questions as these: Should serum be discarded? Would sulfapyridine alone "do the work"? What is the relative

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value of the two agents when either is used alone or when they are administered in combination?

An article in the *Journal of the American Medical Association* (issue of December 21, 1940) supplies some pointed answers to these questions. These are found in a paper by Harry E. Dowling, M.D., Theodore J. Abernethy, M.D., and Clarence R. Hartman, M.D., entitled "Should Serum Be Used in Addition to Sulfapyridine?" An extensive study led the authors to draw the following conclusions, which are quoted verbatim from the *J.A.M.A.*:

1. A series of cases of pneumonia caused by pneumococcus Type I through type VIII have been alternated for treatment with sulfapyridine alone and with sulfapyridine plus specific antipneumococcus serum. The mortality rate was 12.5 per cent in the group receiving sulfapyridine alone and 9.8 per cent in the group receiving serum plus sulfapyridine. If the type III cases are omitted, the corresponding figures are 9.2 and 4.5 per cent, respectively.

2. Serum seemed to be particularly valuable as an adjunct to sulfapyridine in patients over 40 years of age.

3. Crisis occurred more frequently and was more prompt in the patients receiving serum in addition to sulfapyridine.

4. It is suggested that serum and sulfapyridine both be given to patients over 40 years of age with pneumonia, and to those who are in need of a prompt defervescence.

The conclusions reached by Drs. Dowling, Abernethy, and Hartman seem to stress the desirability of continuing the selective use of serum with sulfapyridine, and should help to counteract the unfortunate tendency in some states toward the abandonment of serum altogether or, at any rate, stopping its official production and distribution.

MAGAZINE ARTICLES

Current popular magazine articles on health or of medical import:

"Famine Fighters." Paul de Kruif. *The Reader's Digest*. December, 1940.

"Supercharged Flour—An Epochal Advance." Paul de Kruif. *The Reader's Digest*. January, 1941.

"Hi, Doc." Webb Waldron. *Factory Maintenance and Management Magazine*. December, 1940.

"A Medical Chart for Winter Ailments." (This chart, in addition to listing the twelve most common disorders that occur during the winter months, also includes brief statements about the causative agent, early symptoms, transmission, contributing causes, and methods of treatment of each disease.) No author given. *Good Housekeeping Magazine*. January, 1941.

"Colds . . . what can we do about them?" Dorothy V. Whipple, M.D. *Parents' Magazine*. January, 1941.

"The Health of the Nation's Children." Thomas Parran, M.D. *Parents' Magazine*. January, 1941.

"The Alphabet of Vitamins." Jane Stafford. *The New Republic*. November 25, 1940.

"New Facts on High Blood Pressure." Iago Galston, M.D. *The American Mercury*. January, 1941.

"Adventures of a Sneeze Hound." Katharine Madison. *American Magazine*. January, 1941.

(The above is not presented as a complete list and the articles cited are not necessarily recommended.)

MISCELLANEOUS HEALTH ITEMS

Frequent inquiries are received from health educators regarding the availability of old prints and drawings on medical subjects. One of the best sources that we can recommend is The Bettman Archive, 215 East 57th Street, New York, N. Y. Glossy prints (5″ by 7″) will be mailed for examination on any subject requested. The Archive states that it possesses prints on every subject "from Aardvark to Zymosis" and after an examination of its collection, we can endorse this claim.

The American Social Hygiene Association has quickly assumed its obligation with reference to the nation's defense preparations. Two attractive folders—one designed wholly for men about to enter the Army and Navy—are now available. "So Long Boys—Take Care of Yourselves" is the title of the publication for the men in the service. This is a straightforward discourse—written in man to man terms—that sets forth the needed facts about syphilis and gonorrhea. The second leaflet is a more elaborate presentation called "You Can Defend Them." It contains information about the association's work and carries an appeal for financial support. In the face of many brochures developed for the same purpose, we believe the association's folder is effective enough to meet the competition and encourage contributions from many of its readers.

Annual reports from health and welfare agencies are becoming increasingly effective in the manner of presentation, in the writing, in the use of photographs, and in general make-up. This is an encouraging development, as annual reports have long followed a "cut and dried" formula. *The 21st Annual Report of the Queensboro Tuberculosis and Health Association*, Jamaica, N. Y., is a striking example of the new trend. From cover to cover the report reflects careful planning with regard to typography, selection of pictures, and compilation of text.

The first campaign directed wholly against gonorrhea to be held in a major city in the United States was launched recently by medical and health groups in Rochester, N. Y. Among the agencies taking part in the campaign were: the County Medical Society, the State Department of Health, the Tuberculosis and Health Association, the Rochester Pharmaceutical Association, and the University of Rochester Medical School.

And now we learn that the fashion world has become vitamin conscious! New York fashion experts recently decreed that the "Vitamin Girl" is the girl of the hour. Gone are the days when Lillian Russell curves were in vogue! The 1941 "Vitamin Girl" is streamlined, she watches her calories and her food essentials, and takes her daily exercise. Any day now some enterprising drug manufacturer will probably start producing Vitamin Fashion Capsules!

FILM NOTES

In the October, 1940, issue of "Credit Lines" an announcement was made that the American Social Hygiene Association contemplated producing a film on gonorrhea. While the association has not permanently abandoned its plans for this picture, it has been set aside in order that attention might be devoted to a film on a more timely subject—social hygiene and national defense. This production is now in preparation, and present indications point to a release date sometime during the latter part of February. No title has yet been selected.

The Metropolitan Life Insurance Company, in coöperation with the U. S.

Public Health Service, is releasing a one reel technicolor film entitled, "Proof of the Pudding." As previously announced in these columns, the picture deals with nutrition. The subject has been developed along lines that will appeal to family audiences particularly. The picture now is available only for theater use. Many health and related agencies are coöperating in its distribution and promotion.

The Health and Safety Section of the Tennessee Valley Authority has in the final stages of preparation a motion picture on malaria. It is said that this film will be especially notable for certain sequences showing phases in the life cycle of the malaria-bearing mosquito. The film will be used primarily for teaching purposes.

"WASTE NOT—WANT NOT"

"Bureau Brevities," a mimeographed sheet published by the Bureau of Social Hygiene of the Department of Health of the City of New York, recently issued a "Waste Not—Want Not" number containing much timely advice that every health department in the country might well heed. The publication points out that we have grown careless in our abundance and that the time is at hand to practise conservation, "to plug every waste hole."

Here are some of the items that are taken into consideration in the Bureau's conservation program:

1. Electricity—Turn off the lights when you leave a room! Don't let sterilizer current "go full blast" all the time!

2. Equipment—Try to salvage glassware, broken syringes, and the like! Try not to discard needles until the nurse-in-charge has had an opportunity to have them resharpened! Keep breakage down!

3. Supplies—Conserve all supplies, especially alcohol. Too much alcohol is sent into the sink!

4. Laundry, Paper Towels, Blotters—Use each of these items only for the purpose for which each is intended.

5. Telephone—The telephone is too convenient and most health department wires overloaded. Before you dial that number, THINK—would a post card do as well?

6. Postage—We have a tendency to "let ourselves go" when it comes to stamps. Frequently several letters are directed to the same person in the same office each day. Do you send each letter separately or do you put them all in one envelope?

7. Time—Avoid wasting time—Time is money and time is energy. When we waste time, we misspend energy as well as money.

RE: CLEVELAND'S HEALTH MUSEUM

Museum News, the official organ of the Cleveland Museum of Health, brings the good news that America's first museum of health is now a "going concern." It should be of interest to all health educators to know that public response to the Museum has been most gratifying. The exhibits have caught the interest of Cleveland's citizens as shown by the mounting attendance. Moreover, the Museum is already demonstrating its usefulness as a teaching center. Biology classes from Cleveland's schools, student nurses from local hospitals, members of druggists' associations, and representatives of social service organizations are among the groups that have studied the health exhibits.

We predict that the Cleveland Museum of Health will become a vital force for better living in the community and that many other cities will eventually follow in Cleveland's footsteps and establish similar museums dedicated to the pursuit of health and happiness. Here's a job for health educators: start a movement for a health museum in your community!

BELIEVE IT OR NOT—

Calculus made easy! Unless you have a talent for things mathematical, this statement will probably strike you as nothing more than a publisher's blurb for a new textbook. We have it on good authority, however, that the

statement is true. From Pennsylvania State College comes an announcement that two of the institution's professors have succeeded in condensing the whole of calculus into 40 pages—designed especially for those studying statistics. Since students of public health usually have to master at least a working knowledge of calculus, the news of this book will probably be welcomed as the answer to a long felt need.

It is said that this new text presents the essentials of differential and integral calculus for statistical studies in such a simple fashion that beginners with only a high school mathematical background can learn the necessary fundamentals in less than 10 hours. Any public health student who finds statistics "rough going" will doubtless consider this new book a godsend. The title—"Statistical Procedures and Their Mathematical Bases." The authors—Professors Charles C. Peters and Walter R. Van Voorhis, of Pennsylvania State College.

(P.S. Health educators who have a tendency to "become a little rusty" on their statistics will likewise be interested in this streamlined calculus text!)

NOTED AND QUOTED

In the January issue of "Credit Lines" a number of quotations touching upon various public health matters were printed under this heading. The editors have gleaned other quotations from various sources and this month we devote this space to a series pertaining to one subject of great concern to every public health worker—research.

"Research is an organized method of trying to find out what you are going to do after you can't keep on doing what you are doing now."

C. F. Kettering, Director of Research, General Motors Corporation

"The research of the laboratory is of no importance unless it can be applied to human betterment."

E. L. Bishop, M.D., Tennessee Valley Authority

"Research is a process by which more and more is found out about less and less."

Anonymous

"One small bit of information brought to light by the research laboratory may eventually prove to be worth many millions of dollars and save untold suffering."

Basil O'Connor, President, The National Foundation for Infantile Paralysis

"In view of the admitted need for more and better research, and because private philanthropy for such purpose seems to be vanishing, it would appear logical and desirable that the Federal Government assume a larger responsibility for leadership in scientific research."

Thomas Parran, M.D., Surgeon General, U. S. Public Health Service

"Intellectual curiosity is the mainspring of all research."

Anonymous

"If a man has real spirit there is no place on earth where he cannot develop himself—even do research. Remember Bunyan wrote his great works in prison."

A. S. Pearse, Ph.D., Professor of Biology, Duke University

"Whatever we do in this land of ours, we must never permit anything to interfere with scientific research which brings such great gifts to medicine, and through medicine, to humanity everywhere."

Walter C. Alvarez, M.D., Mayo Clinic, Rochester, Minn.

(If you would like to have this feature continued, please send the editors any quotations, slogans, or significant statements related to public health that appeal to you. We shall endeavor to print them. Please give the source of any material submitted.)

BOOKS AND REPORTS

Bacillary and Rickettsial Infections: Acute and Chronic. Black Death to White Plague—*By William H. Holmes. New York: Macmillan,* 1940. 676 pp. Price, $6.00.

Dr. Holmes's treatise is a result of 27 years of teaching American medical students, and represents the methods of teaching evolved from that experience. In his own words, " It covers each subject with a reasonable degree of completeness consistent with its social, medical, and historic importance." The historical and social aspects of the various diseases included in this text are emphasized far beyond that usually encountered in a textbook of medicine. The author covers the field of the bacterial and rickettsial diseases in a single, moderate sized volume, and of necessity has dealt briefly with many of the diseases included within this group. The omission of the coccal infections, particularly the streptococcal and pneumococcal infections, from this volume is to be regretted.

The author believes that the value of the physician to society will be greater, and the general level of the practice of medicine higher, if a broad social point of view is instilled in the medical practitioners during their courses in medical school. Undoubtedly many textbooks of medicine embody a greater volume of conventional factual material, but Dr. Holmes has emphasized what might be called the philosophy of medicine.

Though written primarily for medical students, the author has maintained throughout a remarkable simplicity which should appeal to non-medical readers. The medical reader may criticise the author's admitted failure to provide complete documentation of both the scientific and historical material presented for some of the diseases, but reasonably complete bibliographies are given for the Pasteurella and Rickettsial infections and for tuberculosis. The author's treatment of plague and tuberculosis is unusually complete and is interestingly presented.

Both professional and non-professional readers will enjoy the easy style in which the book is written, and the occasionally slyly humorous manner of the author. The entire book is interestingly annotated by the author, and contains a reasonably complete index.

ERNEST L. STEBBINS

The 1940 Year Book of Public Health—*Edited by J. C. Geiger, M.D. Chicago: Year Book Publishers,* 1940. 560 pp. Price, $3.00.

This review of the literature on public health, which necessarily includes the communicable diseases and epidemiology, is well done. In the 540 pages of text one will find systematically arranged under proper headings, abstracts from articles by 536 authors. The literature of the past year is well covered, and by consulting this book one is able at a glance, so to speak, to obtain a sketch of the latest studies in any particular line in which he is interested.

It is interesting to note the comparative space given to different topics, which is an indication of the interest which that particular subject is exciting at present. Child Hygiene is divided into General, Dental Hygiene, Mental Hygiene, and Nursing, some 62 pages being given to the entire subject.

Among other topics to which con-

siderable space is given are Food and Milk, Industrial Hygiene, and Administration, which is subdivided into Medical Care and Maternal Care.

The printing and make-up of the book are excellent and there is a good index of subjects and another of authors. The publishers of the Year Books as well as the Editor are to be congratulated on an excellent and useful volume. MAZŸCK P. RAVENEL

Rheumatic Fever: Studies of the Epidemiology, Manifestations, Diagnosis, and Treatment of the Disease During the First Three Decades—*By May G. Wilson. New York: Commonwealth Fund,* 1940. 595 pp. Price, $4.50.

In most parts of the United States rheumatic fever probably represents the third most important chronic infectious disease—after tuberculosis and syphilis. For this reason alone it seems high time that another comprehensive book about this disease should appear in this country; for to the reviewer's knowledge there has been only one previous volume by an American author devoted to this all important disease. But there are other reasons too why clinicians and public health workers should welcome the appearance of Dr. Wilson's big book, for besides including a series of studies on different aspects of rheumatic fever, it can serve as a text book, and a reference book as well.

In summarizing its contents one can hardly improve upon the statement to be found on the jacket which says:

> Dr. Wilson presents in this volume the results of more than twenty years' study of the etiology, epidemiology, manifestations, course, diagnosis, prognosis, and treatment of childhood rheumatism. In her long experience in the cardiac clinics and wards of the New York Nursery and Child's Hospital, and the New York Hospital, she has had the opportunity to follow many cases of rheumatic fever and rheumatic heart disease from onset of the illness in childhood through the years of adolescence and early adult life. She has made full use of her own rich experience in preparing this book, and has drawn upon the extensive literature of the disease. Each of the five parts has its own bibliography, and there are bibliographies in connection with discussions of particular interest.

Of particular interest to public health workers is Part 1, which includes a consideration of the epidemiology of rheumatic fever, and especially the familial epidemiology, which is a new and growing science in the field of all human chronic infections. Parts 2 and 3 review the symptomatology and the clinical course of the disease through the first 3 decades of life; and Parts 4 and 5 are concerned with diagnosis and treatment.

The author's approach to her subject is through the hospital clinic; her method is that of the clinical statistician. There are an amazing number of charts, diagrams, and tables in the book, and it is a little difficult to ascertain which of them deserves close attention. One cannot avoid wondering whether the statistical methods of analysis employed and the methods of their exposition, have been used enough with other diseases to make them understandable in this disease. In any event if one were to study and digest the vast amount of material in this book it would take at least a few weeks. This is not to be said in disparagement, however, for it is questionable whether a student of rheumatic fever could spend a few weeks in a better occupation.

JOHN R. PAUL

Silicosis—Proceedings of the International Conference Held in Geneva from 29 August to 9 September 1938—*London: International Labour Office,* 1940. 223 pp. Price, $1.25.

This is a compilation of the discussions at the Second International Conference on Silicosis and includes the text of the reports submitted by a num-

ber of experts from the various countries that participated. Members of the committee were present from nine countries. The United States was represented by Dr. Leroy U. Gardner and Dr. R. R. Sayers.

The object of the Conference was to study the progress in knowledge of silicosis since the Johannesburg Conference in 1930 and to discuss the effects of the inhalation of nonsiliceous dusts, especially the pneumoconiosis affecting coal miners. Space will not permit a review of the many interesting papers that were presented on the various phases of the dust problem. However, a few of the more important conclusions and recommendations of the Conference are given.

1. The Conference reaffirmed the definition of silicosis arrived at by the 1930 Conference that "silicosis is a pathological condition of the lungs due to inhalation of silicon dioxide. It can be produced experimentally in animals." It recommended that the term "rapidly developing silicosis" be used instead of "acute silicosis" to designate certain cases in which silicosis develops very rapidly.

2. Silicosis occurs among workers in coal mines when the dust to which they are exposed contains silica.

3. Production of silicosis in industries and occupations is always associated with the inhalation of silica dust with or without admixture of other dusts.

4. The early diagnosis of silicosis is based upon:

(a) The employment history, including conditions involving exposure to silica dust

(b) A complete clinical examination

(c) A technically satisfactory x-ray examination

5. In view of the marked progress that has been made in dust sampling methods, the Conference recommended that when the incidence of silicosis in working places is investigated the character of the dust present be determined at the same time; that when publishing the results investigators in the various countries express the dust counts in terms of particles per cc.; and that while using whatever instruments he prefers each investigator also include various available types so that at some future time comparable results may become available.

6. As the problem of silicosis is essentially a medical one, the valuable contributions made by physicists, geologists, chemists, engineers, biologists, and other professional men should be coördinated and correlated by competent medical authorities.

7. The assessment of incapacity can be determined only by complete examination; radiographic findings do not necessarily bear any definite relation to the degree of incapacity.

8. Methods of prevention recommended are initial examination of workers, campaign against dust in general and silica dust in particular, and personal protection by means of masks.

9. The Conference was not cognizant of any specific therapeutic measures in the treatment of silicosis nor of any method of stimulating the elimination of silica from the lungs.

10. The Conference considered that it would be of great advantage to workers in the field of dust prevention if the results of individual experiments could be made available to all. It was recommended that the International Labour Office be charged with collecting such information, and distributing it as soon as possible to all interested persons.

It was also recommended that conferences be convened periodically at intervals of three years.

R. R. SAYERS

Manson's Tropical Diseases — *Edited by Philip H. Manson-Bahr, M.D. (11th ed. rev.) Baltimore: Williams & Wilkins,* 1940. 1,083 pp. Price, $11.00.

One always welcomes a new edition of this standard textbook on tropical diseases first published 42 years ago by Sir Patrick Manson, the father of modern tropical medicine. The advances which have been made in our knowledge of tropical diseases since the first edition was published have been tremendous and are reflected in the present volume. Probably no one in the world is better fitted than Manson's son-in-law to present authoritatively from his personal experience this broad field of medicine so little known to most physicians and public health workers in the United States.

The introductory chapters on Life in the Tropics present the practical prob-

lems of the foreigner going to these regions. The book is divided into sections on Fevers, Vitamin Deficiency Diseases, Abdominal Diseases (mainly Diarrheas), Infective Granulomatous Diseases, Diseases of the Central Nervous System, Tropical Venereal Diseases, Tropical Skin Diseases, Local Diseases of Obscure Origin, Animal Parasite Diseases, and Diseases due to Poisons of Vegetable and Animal Origin. These sections are followed by an appendix on Medical Zoölogy and Laboratory Methods.

The book is splendidly illustrated with 18 color plates, 15 half-tone plates, 364 figures in the text, 6 maps, and 28 charts. Many of the color plates and other illustrations were made by the editor himself.

The descriptions of diseases are accurate and mostly based on personal experience. Methods of treatment are given in great detail; indeed, one might wish that the author would express more definitely his opinion on the relative merits of various methods of treatment. The ineffectiveness of plasmochin in the treatment of malaria is not sufficiently emphasized, and the short course of malaria treatment advocated by the Malaria Committee of the League of Nations is not presented. In the treatment of hookworm, the use of trichlorethylene is mentioned but tetrachlorethylene is not mentioned, while carbon tetrachloride, which has caused a number of deaths, is given considerable space. Although the whole book has a distinctly British point of view this is inevitable because the author's background expresses primarily the experience of the British colonial workers who have contributed most to the advance of tropical medicine.

With the increasing interest of the United States in the medical problems of Tropical America, this book should find a place in the library of every agency and student concerned with the field of medicine and public health in warm climates.

HENRY E. MELENEY

The Virus: Life's Enemy—*By Kenneth M. Smith. New York: Macmillan,* 1940. 176 pp. Price, $2.00.

A review of this book would be facilitated if one were sure for what class of students it is intended. The author has apparently experienced some of this same indecision, as shown by his tendency to lead gently into the center of the academic argument and suddenly to slip into the minutiae of scientific detail. There appears to be a conflict between a natural tendency to accurate scientific exposition and a duty of explaining the point in "speaking English." The presentation is too technical for the layman, too cursory for the student of the virus problem. One must assume, therefore, that the review is directed toward the reader well grounded in the basic sciences who is not familiar with the present state of virus research.

Nevertheless, in its 176 pages there is meat for all. Part I, The Nature of the Virus, comprises three brief chapters. The first of these summarizes the development of thought concerning the cause of infectious diseases; the second deals essentially with physicochemical methods of studying the properties of viruses; the third, What is a Virus? covers the current discussion concerning their place in nature as degenerate living organisms or protein molecules. Part II, The Virus in Action, is concerned with the modes of transmission, an extremely stimulating chapter on the rôle of insect vectors of virus diseases, the interaction of the virus and the affected cell and variations in viruses. There is then a brief summary of the essential features of important virus diseases in man, animals, insects, and plants. The final chapter discusses

clearly the problem of prevention and control of virus diseases, using recent studies as illustrations, and presents a contrast of the approach to prevention of virus diseases in animals and plants.

The sequence is admirable and, within the narrow confines of this book, the author summarizes a tremendous amount of material in a thought-provoking manner. Dr. Smith draws deeply on his experiences in plant pathology to which he has made notable contributions and he is at his best in those portions of the book in which the argument is illustrated by the problems which arise in his own field.

There are certain general statements which may not be fully acceptable, such as that prontosil dissolves the capsules of bacteria, p. 162; that monkeys are the normal reservoirs of yellow fever, p. 156; that equine encephalomyelitis is entirely a matter of mosquito transmission, pp. 71, 85; or that spotted fever in the United States is transmitted by the dog tick, p. 89. The illustrations are clear and well selected. There is no bibliography.

THOMAS FRANCIS, JR.

Your Health: A Guide to the Medicine and Public Health Building, New York World's Fair, 1940—*New York: American Museum of Health, Inc.*, 1940. 96 pp.

This well written guide contains, in the proverbial nutshell, explanations and illustrations of the entire array of Health Exhibits at the New York World's Fair of 1940. In the first pages of the book are a complete table of contents, an index of the individual exhibits, a foreword by George McAneny, president of the American Museum of Health, and a brief section on the aims of the American Museum of Health by Homer N. Calver, secretary of the organization.

The remainder of the guide is divided into two main parts; the first being devoted entirely to the Hall of Man, and the second to the Hall of Medical Science. In each part is included a key to the various sections of the exhibit, and a brief but pertinent write-up with illustrations of each. Among these may be mentioned the Pulsation of Life, Eating and Drinking, The Story of Diphtheria, and Cancer.

Your Health aims to tell the public, in exhibit terms that can be understood by the layman, how the body is made and how it functions; how to combat disease and conserve life. Within space limitations these aims have been well met through a vivid, clear, readable, and accurate presentation. The attractive cover as well as the numerous illustrations are to be commended. Photographic plates of the Pulsation of Life and Transparent Man are especially striking. This book is of special value to the teacher of health education in the schools and the public health educator as a source teaching concepts and ways in which they can be visualized.

C. E. TURNER

Simplified Diabetic Manual—*By Abraham Rudy. New York: Barrows & Co.*, 1940. 216 pp. Price, $2.00.

The first few chapters of this book deal with the definition of diabetes and what happens to the food in the body. These are very elementary and are suitable for laymen only.

The next chapters, however, are more detailed, the discussion of the causes of diabetes and the stress laid upon obesity and heredity is very important. The marriage problem of the young diabetic and the future effect is brought forward. The author then goes into the complications of diabetes, how, possibly, to treat them and how to prevent them. He gives instructions to young and old, as their conditions require. Insulin is carefully described in its various forms, and the dangers of insulin, sensitivity, reactions and atrophies are described.

A large part of the book, and the most important, is devoted to the dietary treatment. Here the author excels many other volumes prepared for diabetes. The diet menus are graphically portrayed and so are the carbohydrate percentages in food. The deficiency states in avitaminosis and their treatment are described in detail. There are many graphs, tables, and charts prepared for simple and practical utilization.

The chapters on diets to suit various nationalities, and the simplicity of the menus are of value to all concerned with the problems of diabetes.

The reviewer deems this book excellently suited to the needs of the diabetic. MORRIS ANT

Borrowed Children: A Popular Account of Some Evacuation Problems and Their Remedies—*By Mrs. St. Loe Strachey. New York: Commonwealth Fund,* 1940. 168 pp. Price, $.75.

Everyone interested in the 734,883 British children who were evacuated in September, 1939, from large cities to places in England thought to be safe, will want to read this little volume.

The story of the emotional struggles and adjustments of these youngsters and of their acceptance into English homes by families accustomed and unaccustomed to children is both moving and revealing.

Borrowed Children presents both successful and unsuccessful adjustments. It contains much of interest to all seeking an understanding of child psychology and behavior problems of children, and is important to those who have contact with the children who have come to this side of the Atlantic seeking safety. Notable in this book is the will to understand and help in the difficult situations which are described. The careful analysis of these experiences may lead to clearer understanding of children's problems the world over. It presents a clear case for the Child Guidance Centers which the Commonwealth Fund has developed.

ALTA ELIZABETH DINES

Food, Nutrition and Health—*By E. V. McCollum, Ph.D., Sc.D., and J. Ernestine Becker, M.A. (5th ed.) Baltimore: Lord Baltimore Press,* 1940. 127 pp. Price, $1.50.

The authors state that their objective "has been to present the established facts about nutrition in non-technical language, and to show what can and what cannot be accomplished through diet." Furthermore they have "attempted to point out some of the common fallacies about diets which have done and are still doing much harm to credulous and uninformed people." It is a real problem to reduce to about 100 pages material that usually requires a good sized volume, and the authors have had to sacrifice clarity for brevity. These sacrifices occur, however, at such rare intervals that one must conclude that the authors have been successful in accomplishing their objectives.

The book is divided into 24 chapters. The first 10 deal with the vitamins, and one chapter of 8 pages is concerned with minerals. To one already familiar with these subjects, the reading of these chapters will unconsciously be supplemented by what the reader already knows. To the novice, however, their perusal will lead to questions that must remain unanswered unless sufficient interest has been aroused to stimulate further study. For this reason such a concise array of information leaves much to be desired.

The next three chapters discuss foods of vegetable and of animal origin and coffee and tea. The remaining chapters form an admirable brief presentation of the influence of foods upon teeth, in pregnancy and lactation, upon the

nervous system, the digestive tract, the acid-base balance, body weight, longevity, and health in general. At the end of the book are menus for those of normal weight and for those overweight. There is also a tabulation of foods giving the distribution of vitamins A, B, C, D, and riboflavin.

For a brief and authentic presentation of nutrition this book well serves its purpose and should serve as well to stimulate further reading.

IRA A. MANVILLE

Holt's Diseases of Infancy and Childhood—*By L. Emmett Holt and John Howland. (11th ed., Revised by L. Emmett Holt, Jr., and Rustin McIntosh.) New York: Appleton-Century,* 1940. 1421 pp. Price, $10.00.

Ever since the first edition of this text appeared in 1896 from the pen of the older Holt it has been recognized as an authoritative, comprehensive, and practical treatise which attempts "to furnish a guide to practical therapy based on a thorough understanding of the nature of disease." Dr. Holt, who himself revised the first four editions, made the volume the standard textbook of pediatrics in the English language—a position each succeeding edition has been able to hold.

To scan these volumes gives one as well a picture of the development of preventive pediatrics, a subject of no small interest to the public health worker of today. Dr. Holt was a pioneer in and founder of preventive pediatrics in this country—a man with a keen sense of social responsibility. The authors of the current edition, though more deeply steeped in the tradition of the laboratory, have nevertheless kept an eye on those developments which are claimed by some to belong to the "public health field." It may well be said that this book is in essence a manual of public health as well as of pediatrics, for the prevention of specific morbid conditions and the maintenance of optimal health is taken for granted as the goal of the pediatrics which the authors propound.

This edition differs from the earlier ones in that the services of 34 collaborators have been secured in writing the volume. Conspicuously lacking are the faults usually found in volumes so produced. Drs. Holt and McIntosh have carefully balanced and rewritten the contributions so that a harmonious treatise results, one the richer probably because so many specialists could be given an opportunity to discuss the particular field in which they are expert.

Little of the tenth edition remains intact. The inclusion of information from articles from almost current journals is startling—as, for example, the toxic effects of sulfathiazole, or the administration of vitamin K to the mother before delivery as a protection against hemorrhage in the new-born infant. The sections on hygiene and care have doubled in length with excellent reviews of the contributions from the field of normal growth and development, and those on nutrition and the premature infant and the new-born, diseases of endocrine origin, and of the mouth, nose, throat and ears have been enlarged. All these sections are of particular interest to those in public health. There is a new section on the eye, and there are many new illustrations. The table of contents has been improved; the index is lengthy and useful. This reader wished that in the bibliographies accompanying each subject, inclusive pages of journal references, and total pages of books had been included so that she could have had some hint of the quantity of information to be gained from further perusal of a given item, the quality of which was already indicated by its inclusion in the bibliography.

LEONA BAUMGARTNER

Advances in New York City's Health: ***The Annual Report of the Department of Health of the City of New York for 1939, with a Review of Developments from 1934 to 1939—By John L. Rice, M.D. Savel Zimand, Editor. New York: Department of Health,*** 1940. 296 pp.

For the third time Mr. Zimand edits the year's record of the all-star team, Mayor LaGuardia and Dr. John Rice. "Graphically written and full of teaching," Sir Arthur Newsholme's comment on the 1937 report, applies fully to this latest volume, with its telling illustrations, terse titles and striking charts which show the conquest of pestilence since 1800 in America's greatest city.

"Spending Dollars to Save Lives" is the caption for the vital section on the annual budget, and when the last chapter has been read it is abundantly clear that the modest investment of 76 cents per capita has produced rich dividends for the people and for the metropolis. Such expressions as "In the fall of 1939, a new procedure became effective . . ." and "Obsolete records were removed, unnecessary clerical work and unnecessary inspections were eliminated, and the quality of the work was greatly improved" can be looked for under almost any heading, and bespeak a vibrant, progressive health department eager to make every appropriated penny pay and every service superior to what it has been.

The reader will be struck by the success achieved in replacing part-time with full-time qualified personnel in key positions, by the many evidences of staff training and by the reiteration on the educational nature of the task, which is the very essence of effective public health work. Again, the decentralizing of the great main office into superb District Health Center buildings for neighborhood performance; with proper focus on relationships with the medical profession and medical schools, with the advancing programs for housing and welfare and community planning and research, and with the hospitals and their morbidity records—all these are samples of the proof that much careful thought and effort have been given to sound policy, which has not been allowed to suffer because of an appalling maze of administrative detail.

It is with some difficulty that the facts on population and on some of the communicable diseases are found, and another year perhaps one will see a record of the vital statistics for Negroes, and other data such as the percentage of the child population that has been inoculated for the prevention of diphtheria. It may even be that the new symbol STS for "serologic test for syphilis" will replace the outworn word Wassermann, and that it will be clear to the reader whether or not the reported cases of poliomyelitis refer only to such as showed paralysis or muscle weakness. Then too, if nearly two-thirds of all deaths being listed as due to cancer, diabetes and cardio-vascular-renal diseases constitutes "a definite challenge," one is tempted to wonder in which among the ***List of Causes of Death*** the statistician would welcome an increase as normal and desirable. Surely a health administrator's aim should be to postpone but never to prevent a death.

To be one of the shock troops or public health G-men whose deeds are set forth in this chronicle must surely be cause for inspiration and congratulation.

The record is one that will stimulate emulation on the part of the professional friends of the New York City Health Department. Indeed, they have already come to expect and will continue to look for reports of like advances in the years that lie ahead.

HUNTINGTON WILLIAMS

Hugh Young: A Surgeon's Autobiography — *New York: Harcourt, Brace*, 1940. 554 pp. Price, $5.00.

The prostate which makes other men old made, it is said, Hugh young. Accordingly, " that seductive man " places in the midst of his biography 125 pages of description of operations that, in spite of the perfect illustrations by Didusch, are as little attractive as could be imagined. It must have been exuberance that dictated these pages for they serve no purpose except that of satisfying a morbid curiosity with which the author would perhaps sympathise more than the rest of us do; all set down in a popular style that precludes precision.

The earlier chapters on his youth and ancestry are charming, the 200 pages devoted to what is beginning to be called in England the " four years' war " less historical than Rabelaisian. Future memorials to this distinguished citizen will perhaps lay emphasis not so much on the Brady Urological Institute and its director's unquestioned preëminence in American urology or his saving the A.E.F. from syphilis, as on the man who did so much for Maryland and Baltimore, even if he did his best to make the ladies blush.

To us who have watched his meteoric success and the intuition, the wit, the deliberate almost foolhardy daring that builded this success, comes a chuckle as we compare the life of Hugh Young, set down here with such disarming candor, and that of another Hopkins man, as inspired, as gay, more broad, even more sympathetic and generous, more industrious, less egotistical for all his pranks: William Osler. How fundamentally like to his granddad each of them was. H. H. Y.'s grandfather, General W. H. Young, having killed a buffalo, " remembered that the animal had a supernumerary stomach which was filled with water and newly cropped hay," so he slit the stomach with his bowie knife and, compressing the hay with the buffalo's tail, drank the water " which he assured me was pure and palatable." Be careful what grandparents you choose, boy!

A beautifully printed book with colored plates of handsome Hugh and ugly Jim. To be read for the joy that has always drenched Dr. Young's life, by those whom hermaphoditism and prostatism and egotism and shameless laughter do not shock.

EDWARD L. KEYES

Coöperation in the Administration of Tax-Supported Medical Care —*By The Committee on Medical Care, American Public Welfare Association. Chicago: American Public Welfare Association (1313 East 60th Street)*, August, 1940. 32 pp. Price, $.20.

State and local health officials should give thoughtful attention to this study of Tax-Supported Medical Care, by the Committee on Medical Care of the American Public Welfare Association. The work of this committee since its appointment in 1937 has emphasized the administrative confusion resulting from division of authority, and lack of coöperation in this field. Examples of such confusion resulting from division of authority in the administration of tax-supported medical care at state and local levels are given. The authors stress the fact that to achieve the maximum results, the administration of all preventive and curative medical services should be closely related and functionally coördinated. Admitting that it is frequently impractical at the present time to consolidate all tax-supported preventive and curative services into a single governmental unit, they suggest measures for bringing about coördination and integration of services between different departments. Examples of coöperative relationships existing between governmental agencies

at national, state, and local levels are reviewed. Health officials should be grateful for this intelligent discussion of a difficult administrative problem. It should be of interest to all agencies and individuals concerned with the administration of tax-supported medical care. BENJAMIN G. HORNING

Dermatology and Syphilology for Nurses, Including Social Hygiene—*By John H. Stokes, M.D. (3rd ed. rev.) Philadelphia: Saunders,* 1940. 365 pp. Price, $2.75.

For many years Dr. John Stokes has influenced the thinking of nurses in institutions and in public health through his numerous lectures and writings on syphilis and social hygiene. Through his book, *Dermatology and Syphilology for Nurses,* first published in 1930, he has taught many students the symptoms and treatment of cutaneous diseases, of syphilis and of gonorrhea. Its terse, crystal clear descriptions, enhanced by " thumb nail sketches " and summaries, have been invaluable to undergraduate and graduate alike, and its pioneer emphasis upon a sane, scientific, and humane attitude toward the victims of the genitoinfectious diseases, has been a force in dispelling prejudice and misconceptions.

Nurses everywhere will welcome the advent of the third edition of this excellent book. The entire text of the 1935 edition has been carefully revised and brought up to date. There are additions to the sections on skin diseases, such as may be found under ringworm, ticks, urticaria decubital ulcers, etc. The chapters on syphilis and gonorrhea contain new and valuable details on fever therapy and the use of sulfanilimide. There is a review of the recent rapid developments in the public health control of syphilis and gonorrhea; and a chapter by Louise Ingraham, on contact tracing and follow-up technics, which describes the methods of the Institute for the Control of Syphilis at the University of Pennsylvania.

With these and other additions and changes the book retains all of its earlier features including the psychological and social hygiene considerations which are woven into the general text and discussed as separate topics in the final chapters. GLADYS L. CRAIN

Dietetics Simplified: The Use of Foods in Health and Disease—*By L. Jean Bogert, Ph.D.; Laboratory Section, by Mame T. Porter, M.A. (2nd ed.) New York: Macmillan,* 1940. 742 pp. Price, $3.00.

This practical, thoroughly scientific text on dietetics should be of service to students in home economics courses, to hospital dietitians, to public health nutritionists, to nurses, and to medical students. It should prove useful to physicians who wish to educate their patients along dietary lines. Intelligent housewives will find it a valuable aid in coping with the feeding problems of families. Sample menus and dietaries are lucid and practical. Illustrations are pertinent.

The scope of the book includes a discussion of elementary nutrition, diet in normal conditions, and therapeutic diets. Each disease is treated with other conditions which require diets of a similar nature. All therapeutic diets are presented as variations of the normal diet with particular emphasis on the importance of maintaining nutritive essentials in all diets which are to be continued any length of time. The author presents various schools of thought regarding certain therapeutic diets where there is not as yet complete agreement.

Food prices for 1940 are included in the discussion of diets at different cost levels. Food problems due to racial habits should be of particular interest to public health workers.

The new figures by Chatfield and Adams on "Nutritive Values of Foods" in the appendix, issued by the U. S. Department of Agriculture in 1940, are an important feature of the book. Approximate vitamin values of foods are also listed in terms of standard International units whenever possible.

The first half of the planned laboratory lessons deal with cookery and normal conditions of the diet. The latter half consists of planning diets for diseased conditions along with the case history and dietary study on a selected patient. This practical application should facilitate better understanding of the principles of nutrition and result in more wholesome and attractive meals.

AGNES M. ENGLISH

Experimental Poliomyelitis — *By Morris Schaeffer and Ralph S. Muckenfuss. New York: National Foundation for Infantile Paralysis, Department of Health of the City of New York,* 1940. 158 pp. Distributed free of charge.

Perhaps one should first read Part II of this monograph, wherein a large number of neutralization tests, done with one lot of pooled convalescent serum against a single strain of poliomyelitis virus, demonstrate that the neutralization test, as at present performed, is a crude biologic procedure with an error of about one in six, and that it is not amenable either to niceties of titration or of interpretation as an individual test. With the experimental observations of the authors in mind, one cannot but agree with their conclusions from a critical review of the literature, which appears in the first part of the monograph—that many problems are excluded from investigation by the neutralization test in its present form, and that many of the deductions based on the results of neutralization tests have been unwarranted.

The procedure finds its greatest practical usefulness in survey work, concerned not with single tests on single individuals, but with trends of immunity in larger groups of individuals. When used in this way, irregularities or inconsistencies in results, being reversible, tend to balance each other, thus affording probably reasonably accurate readings concerning immunity in larger groups.

In short, the work seems to show that variations in this test are of a biologic nature, similar to those occurring in other tests of this sort, and that if serum-virus mixtures could be inoculated in multiples of six and a reading taken of five out of six, as is done in many other such tests, the neutralization test would take its place with such antigen-antibody tests as that for the detection of diphtheria antitoxin or yellow fever immunity.

W. LLOYD AYCOCK

Communicable Diseases—*By Nina D. Gage, M.A., R.N., and John Fitch Landon, M.D. Philadelphia: Davis,* 1940. 411 pp. Price, $3.50.

This is an excellent up-to-date book for nurses; in fact, the most usable book this reviewer has seen on this subject. It assumes a previous knowledge of bacteriology and the general principles of infection and immunity, merely reviewing the latter very briefly in an introductory chapter. Though the authors state in the preface that the book is designed to meet the needs of the nurse working in homes as well as the nurse in the hospital, the major emphasis is on the hospital situation, and the authors are apparently more familiar with hospital routines than with home conditions. Though the adaptations for home care are usually quite sensible they are described briefly and come almost as afterthoughts at the end of each chapter. The authors state that the technic at home should be simple but they do not carry this

thought out when giving specific directions.

The major part of the book deals with the diseases themselves. These are divided into three units: first, the major diseases, these being the most prevalent and serious ones in this country; second, the minor diseases, and a third unit which includes diseases the authors say "are more properly handled in general textbooks of medicine . . . but may be encountered in public health work and in communicable disease hospitals." This unit includes pneumonia, tuberculosis, typhoid fever, syphilis and gonorrhea.

The discussion of each disease is divided into medical and nursing aspects. In the first there is a description of the important features of the disease including epidemiology, symptomatology, complications, differential diagnosis where indicated, prognosis, prophylaxis treatment, and the isolation and quarantine regulations. One wonders why the authors used the New York City Board of Health regulations for isolation and quarantine rather than those suggested by the Subcommittee on Communicable Disease Control of the Committee on Research and Standards of the American Public Health Association. It would seem that the latter would have more weight in all parts of the country. The second part describes the nursing care of the disease, under such headings as room temperature, asepsis, care of the skin, care of the eyes, nose and throat, diet, mental care, heart, complications, convalescence, and terminal disinfection. Not all these subjects are included in the discussion of each disease, but only the ones which have special significance for the nursing care of the particular disease under consideration. A chapter on sulfanilamide and its derivatives has been added in this second edition, and to bring the book up to date, necessary changes have been made in the text.

The book is exceptionally well organized and clearly written. An outline of each chapter appears under the chapter heading and each section of the outline is marked in the text with bold face type. This makes the book especially useful for reference and very easy to follow. It can be highly recommended as a text for schools of nursing and also as a reference book for graduate nurses.

MARGARET G. ARNSTEIN

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

For More Glorious Fourths—Only those states that have enforced state-wide laws controlling the use of fireworks have shown a satisfactory reduction in Fourth of July accidents. This is the conclusion of the annual compilation of fingers blown off and eyes gouged out.

ANON. Fourth Annual Summary of Fourth of July Injuries. J.A.M.A. 115, 26:2274 (Dec. 28), 1940.

Psittacine Pests—For the men and women who simply must associate with parrots, parrakeets, etc., this editorial brings good cheer. A fairly reliable complement-fixation test can be made upon the birds to determine their freedom from psittacosis and, should a mistake be made, there is available a curative serum to help the misguided pet owner recover from the disease. What prompts anyone to want a parrot in the first place is not considered.

ANON. The Problem of Psittacosis. J.A.M.A. 115, 24:2088 (Dec. 14), 1940.

Pressure Respiration — Probably you will find little practical need for this information but you may still want to know about this interesting contraption for alternating air pressure. Tuberculous patients put in it can stop breathing because the alternate high and low air pressures ventilate the lungs sufficiently. By this means the lung tissue can be rested even though both sides of the lungs are diseased. Ingenious, isn't it?

BARACH, A. L. Immobilization of Lungs Through Pressure. Am. Rev. Tuberc. 62, 5:586 (Nov.), 1940.

Distribution of Medical Services—Illness rates are highest in those groups least able to meet the costs, and those persons who are in the lowest economic level receive the least medical care. Hard-up residents of small communities are the worst off in this respect. You probably suspected this to be true, and here is the evidence to confirm your fears.

BRITTEN, R. H. The National Health Survey. Pub. Health Rep. 55, 48:2199 (Nov. 29), 1940.

Adjunct to Cancer Research—At Baltimore, the Public Health Service maintains a tumor clinic which serves as a demonstration of the life saving possibilities of adequate cancer treatment. In the first 8 months of its existence 226 patients were treated.

BRYAN, E. R. The Tumor Clinic of the Baltimore Marine Hospital. Pub. Health Rep. 55, 48:2195 (Nov. 29), 1940.

Tuberculosis Problems Nos. 1 and 2—In his inspiring presidential address to the National Tuberculosis Association the author labelled the provision of sufficient treatment facilities and an adequate preventive educational program as Problems 1 and 2. Then he explored some of the possibilities in the fields of chemistry and nutrition which some day may help to change the still serious picture.

CHADWICK, H. D. A Review of the Campaign to Eradicate Tuberculosis. New Eng. J. Med. 223, 25:1001 (Dec. 19), 1940.

After One Hundred and Fifty Years—There is still plenty of smallpox, and each year people die of the

disease. Even health workers tend to ignore this astounding fact for most of the cases and deaths occur out in those wide open spaces where rugged individualism reigns. In the East where we docilely submit to vaccination, smallpox does not exist. You will find effective ammunition here for your anti-vaccinist backfire.

DAUER, C. C. Smallpox in the United States: Its Decline and Geographical Distribution. Pub Health Rep. 55, 50:2303 (Dec. 13), 1940.

About a Much Needed Survey—To what extent do health workers meet the qualifications set up by the Education and Qualifications Committee? How much training would have to be given them before they could meet the standard? A study of the level of training and experience of the present crop of health workers is reported in this, the first of a series of papers. You had better read it and get in upon the ground floor.

DERRYBERRY, M., and CASWELL, G. Qualifications of Professional Public Health Personnel. Pub. Health Rep. 55, 50:2312 (Dec. 13), 1940.

Oral Immunization for Scarlet Fever — Ingestion of concentrated scarlatinal toxin in enteric coated tablets immunized susceptible persons against scarlet fever. The authors do not suggest the substitution of this method for hypodermic injection, but point out its definite advantages under certain conditions.

DICK, G. F., and DICK, G. H. A Preparation of Toxin Suitable for Oral Immunization Against Scarlet Fever. J.A.M.A. 115, 25: 2155 (Dec. 21), 1940.

Pneumonia—In this comparison of pneumonia cases treated with sulfapyridine alone or with the drug combined with the analogous serum the results of the latter were so much better, especially with patients over 40, that the combination of treatments is suggested for them and for those in need of a prompt defervescence.

DOWLING, H. F., *et al.* Should Serum Be Used in Addition to Sulfapyradine? J.A.M.A. 115, 25:2126 (Dec. 21), 1940.

For a Healthier Nation—Pointing the remaining weak spots in the anti-tuberculosis program—inadequate case finding and rehabilitation services—this article presents a clear picture of the present-day situation. If we really are to act intelligently in dealing with this completely remediable public health hazard we must get busy along the lines laid down.

DUBLIN, L. I. No More Tuberculosis by 1960. Survey Graphic. 30, 1:30 (Jan.), 1941.

Fumigated Foodstuffs—It seems that fresh vegetables and certain other foodstuffs shipped out of insect quarantine areas are fumigated with methyl bromide to kill the bugs. Extensive studies were made which lead to the conclusion that not enough bromide remains on the food to be harmful to the consumer. This is just another of those miscellaneous items for you to store away.

DUDLEY, H. C., *et al.* Studies on Foodstuffs Fumigated with Methyl Bromide. Pub. Health Rep. 55, 49:2251 (Dec. 6), 1940.

Sound Advice Widely Needed—Of the 11 recommendations for the improvement of tuberculosis control administration in the city of Baltimore, only one applies to the city alone; all the other 10 can be taken to heart by any municipal health board really intent upon ending the spread of tuberculosis—an entirely practical project widely neglected.

FREEMAN, A. W. A Survey of the Facilities for the Prevention of Tuberculosis in Baltimore, Maryland. Baltimore Health News. 17, 12:90 (Dec.), 1940.

Plague—Just to remind you that it can happen, a report is published upon

three outbreaks of pneumonic plague that occurred in South America. There is nothing novel or startling in the account, but it is worth remembering that the mortality rate approximates 100 per cent.

MURDOCK, J. R. Pneumonic Plague in Equador During 1939. Pub. Health Rep. 55, 47:2172 (Nov. 22), 1940.

To Be Read and Digested—Influenza antibody levels were determined among 1,101 persons in a rural community. Then quite providentially an epidemic occurred, and the antibody levels among those who were attacked and those who escaped were determined for a year after. It would be inexcusable to spoil the report of this outstanding study by abstracting the conclusions here. It deserves careful reading in its entirety.

RICKARD, E. R., *et al.* A Comprehensive Study of Influenza in a Rural Community. Pub. Health Rep. 55, 47:2146 (Nov. 22), 1940.

BOOKS RECEIVED

SOCIAL WORK YEAR BOOK, 1941. Russell H. Kurtz, Editor. Sixth Issue. New York: Russell Sage, 1941. 793 pp. Price, $3.25.

NOTTER & FIRTH'S HYGIENE. Revised by L. C. Adam and E. J. Boome. 10th ed. New York: Longmans, Green, 1940. 518 pp. Price, $3.50.

BACTERIOLOGY IN NEUROPSYCHIATRY. By Nicholas Kopeloff. Springfield, Ill.: Thomas, 1941. 316 pp. Price, $4.50.

HOW TO PREVENT GOITER. By Dr. Israel Bram. New York: Dutton, 1941. 182 pp. Price, $2.00.

ORIENTATION IN AMERICAN DENTISTRY: ITS HISTORY AND SOCIAL-PROFESSIONAL BACKGROUND. By Alfred J. Asgis. New York: Clinical Press, 1940. 123 pp. Price, $2.50.

STUDIES IN AMERICAN DEMOGRAPHY. By Walter F. Willcox. Ithaca, N. Y., 1940. 556 pp. Price, $4.50.

THE COMPENSATION OF WAR VICTIMS. Washington: International Labor Office, 1940. 91 pp. Price, $.50.

THE DOCTOR TAKES TO THE AIR. (Part of Bulletin No. 34, December 10, 1940.) New York: Public Relations Bureau, 1940. 28 pp.

PLAGUE ON US. By Geddes Smith. New York: Commonwealth Fund, 1941. 365 pp. Price, $3.00.

HYGIENE. By Florence L. Meredith. 3d ed. Philadelphia: Blakiston, 1941. 822 pp. Price, $3.50.

I REMEMBER. THE AUTOBIOGRAPHY OF ABRAHAM FLEXNER. New York: Simon and Schuster. 414 pp., 1940. Price, $3.75.

SEWAGE-TREATMENT WORKS. Administration and Operation. By C. E. Keefer. New York: McGraw-Hill, 1940. 673 pp. Price, $6.00.

A HISTORY OF MEDICINE. By Arturo Castiglioni. New York: Knopf, 1941. 1013 pp. Price, $8.50.

PHOTODYNAMIC ACTION AND DISEASES CAUSED BY LIGHT. By Harold Francis Blum. New York: Reinhold, 1941. 309 pp. Price, $6.00.

EAST IS EAST AND WEST IS WEST. By Carlos E. Cummings. East Aurora, N. Y.: The Roycrofters, 1940. 382 pp. Price, $3.50.

EXHIBITION TECHNIQUES. By R. P. Shaw. East Aurora, N. Y.: The Roycrofters, 1940. 131 pp. Price, $2.00.

PNEUMONIA AND THE COMMON COLD. Club Talk Series, No. 3. Bulletin No. 35, January 10, 1941. New York: Public Relations Bureau, Medical Society of the State of New York. 6 pp.

COMMITTEE ON TESTS FOR INTOXICATION. 1940 Report to Street and Highway Traffic Section, National Safety Council. Chicago, Ill.: National Safety Council, 1941. 3 pp.

TWENTY-SECOND ANNUAL REPORT—1940. The Commonwealth Fund. New York: Commonwealth Fund, 1941. 73 pp.

ASSOCIATION NEWS

A.P.H.A. Attitude Toward the Schwert Bill

At its meeting on December 20, 1940, the Executive Board considered Association policy with regard to bills then pending before Congress and related to health. The following resolution was adopted:

The Executive Board reaffirms the action of the Association taken October 17, 1939, in which it was declared that health services for school children are properly a part of the general health program of state and local health departments, a part which should be integrated with all other activities of these departments and participated in by the medical and allied professions. Because the program of health instruction and physical education is properly a function of departments of education, and because of the necessity that these health and educational services be coördinated, the Association in approving promotion of health by schools through health instruction urged that any expansion through increased federal appropriations which include health and medical services to children should be developed through agencies whose primary concern is with health.

In the opinion of the Executive Board, it is even more imperative now than a year ago that duplication and conflict in the administration of these plans should be avoided. If the time has come when a superstructure of health education can be supported through federal subsidy, we believe that it should be built on a sound medical program and corrective service as a first step. The administration of such services must not be divorced from the school medical program and the public health departments where experienced medical leadership is most readily available.

While agreeing that the present is an appropriate time to consider the desirability of further federal aid toward health, physical education and medical care, it is our belief that legislation much more adequate for this purpose can be formulated than that presented through the Schwert Bill—H.R. 10606, although the objectives are generally desired and probably can be obtained through a plan which will recognize existing health agencies.

It was the sense of the Board that the Schwert Bill—H.R. 10606 should be considered to be in conflict with the general principle of integrated service and as not meeting the criteria of acceptability on which formal action by the Association has been taken.

(As the *Journal* goes to press a copy of a revised Bill (H.R. 1074) is received. The revision eliminates the health service feature of the former draft, limiting the Bill to physical education, health instruction, and recreation.)

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Merrill L. Dawson, M.A., 1675 Ridgeway Place, Columbus, Ohio, State Supervisor, State-wide Health Project, National Youth Administration

Price H. Duff, M.D., Crossville, Tenn., Director, Upper Cumberland District Health Dept.

William B. Farris, M.D., Williamson County Health Unit, Franklin, Tenn., Director

Murland W. Fish, M.D., 203–24th St., Ogden, Utah, Deputy State Health Officer

Margaret E. Hatfield, M.D., Court House, Janesville, Wis., Medical Director, Rock County Sanitary Unit

Henry A. Holle, M.D., 853 U. S. Court House, Chicago, Ill., District Medical Consultant, U. S. Public Health Service

Edward C. Humphrey, M.D., Mercer County Health Dept., Harrodsburg, Ky., Director

Charles J. Larkey, M.D., 700 Avenue C, Bayonne, N. J., Health Officer

Harry F. Leeds, B.Sc., 30 Mt. Vernon Ave., Pitman, N. J., Acting District Health Officer, Bureau of Local Health Administration, State Dept. of Health

Herbert S. Miller, M.D., P. O. Box 240, Owensville, Mo., District Health Officer, State Board of Health

Alfred C. Moore, M.D., City Health Dept., Baltimore, Md., Administrative Health Officer

Henry R. Perkins, M.D., 150 Mooreland Ave., Laurens, S. C., Director, Laurens County Health Dept.

Everett W. Ryan, M.D., Tallahatchie Co. Health Dept., Charleston, Miss., Director

Frank K. Sewell, M.D., M.P.H., Breathitt County Health Dept., Jackson, Ky., Director

Alvin L. Waller, M.D., Hardin-Tyler Health Unit, Woodville, Tex., Director

John R. Wilkey, M.D., D.P.H., Board of Education, London, Ont., Canada, School Medical Officer

Laboratory Section

Professor Edward D. Davy, 2029 Adelbert Road, Cleveland, Ohio, Acting Dean, School of Pharmacy, Western Reserve University

Ella L. May, B.A., 1017 Tennessee Ave., Albuquerque, N. M., Executive Assistant, State Public Health Laboratory

Lee H. Petersen, B.S., 145 W. Idaho, Boise, Ida., Junior Bacteriologist-Serologist, State Division of Public Health

Jesse P. Porch, D.V.M., District of Columbia Health Department, Washington, D. C., Serologist and Assistant Director, Bureau of Laboratories

Luboff S. Senavsky, A.B., Box 57, Walnut Creek, Calif., Student of Public Health, University of California

Joseph K. Silberstein, M.S., 2314 Morris Ave., Bronx, N. Y., Laboratory Assistant, Pneumonia Division, New York City Dept. of Health

H. M. Sherman Watkins, 3–25th Ave., San Francisco, Calif., Student of Bacteriology and Public Health, University of California

Vital Statistics Section

Marion I. Kersey, B. of C., 250 Government St., Victoria, B. C., Canada, Statistician, Division of Vital Statistics, Provincial Board of Health

B. Alden Lillywhite, M.S., 4124 Edmunds St., N.W., Washington, D. C., Associate Statistician, Division of Statistics, Work Projects Administration

Engineering Section

Ralph M. Chute, M.A.Sc., Box 789, Hattiesburg, Mass., Sanitary Supervisor, Forrest County Health Dept.

William B. Gaylord, Jr., Health Department, Windsor, N. C., Sanitary Officer, Bertie-Chowan District Health Dept.

Eugene L. Lehr, C.E., 15 Summit St., Manchester, Conn., Housing Engineer, Bureau of Sanitary Engineering, State Dept. of Health

Industrial Hygiene Section

Roy S. Bonsib, A.M., E.M., Rm. 2430, 30 Rockefeller Plaza, New York, N. Y., Chief Safety Inspector, Standard Oil Co. of New Jersey

David B. Dill, Ph.D., Soldiers Field Station, Boston, Mass., Professor of Industrial Physiology, Harvard University

Robert T. Homewood, M.S., State Health Dept., Richmond, Va., Engineer, Bureau of Industrial Hygiene

Waldemar J. Klasing, B.S. in C.E., 3197A Portis Ave., St. Louis, Mo., Industrial Hygiene Engineer, St. Louis Health Division

William E. McCormick, M.S., Willson Products, Inc., Reading, Pa., Director, Industrial Hygiene Laboratory

Stewart H. Webster, Ph.D., National Institute of Health, Bethesda, Md., Biochemist, Division of Industrial Hygiene

Food and Nutrition Section

Alice Biester, A.M., Div. of Home Econ., University of Minnesota, St. Paul, Minn., Associate Professor of Nutrition

Louis A. Harriman, Ph.D., Armour & Co., Union Stock Yards, Chicago, Ill., Chemical Research Department

Maternal and Child Health Section

M. Robert de Romeu, M.D., Park St., 91, Santurce, P. R., Chief, Bureau of Maternal and Infant Hygiene, Dept. of Health

Coleman M. Young, M.D., C.P.H., 818 S. Sixth St., Louisville, Ky., Assistant Health Director, Louisville Health Dept.

Public Health Education Section

Etta A. Creech, A.M., 2525 Euclid Ave., Cleveland, Ohio, Director, Family Health Association

Sula Fleeman, 207 Majestic Bldg., Fort Worth, Tex., Executive Secretary, Fort Worth-Tarrant County Tuberculosis Society

Laura V. Geddes, R.N., Sudbrook Park, Pikesville, Md., Staff Nurse, Baltimore County Health Dept.

Elizabeth F. Jordan, Ph.D., 1790 Broadway,

New York, N. Y., Staff Member, National Tuberculosis Association

Margaret J. Maleady, B.S., 2979 Marion Ave., New York, N. Y., Bronx Borough Adviser, Henry St. Visiting Nurse Service

Harriet I. Pickens, A.B., 260 West 139 St., New York, N. Y., Executive Secretary, Harlem Tuberculosis and Health Committee, New York Tuberculosis and Health Assn.

Bessie L. Rice, R.N., B.A., 79 Horatio St., New York, N. Y., Supervisor of Nursing, Judson Health Center

Ruth A. Thomas, A.B., C.P.H., Morris House, Northampton, Mass., Assistant Professor of Hygiene, Smith College.

Public Health Nursing Section

Elinor L. Beebe, R.N., Ph.D., University of California, 405 Hilgard Ave., W. Los Angeles, Calif., Assistant Professor of Public Health Nursing

Geneva E. Hunter, P. O. Box 185, Wagon Mound, N. M., County Nurse

Janet Jennings, R.N., M.A., 1336 Newberry Ave., Chicago, Ill., Director of Nursing, Chicago Maternity Center

Faye A. Tuttle, 808 So. Peoria, Tulsa, Okla., Supervisor, Public Health Association, Inc.

Judith E. Wallin, R.N., 1624 Louisiana Ave., New Orleans, La., Local Field Supervisor, Metropolitan Life Insurance Co.

Helen W. Lukens, B.S., 818–13th Ave., Prospect Park, Pa., Public Health Nursing Instructor, Mt. Sinai Hospital, Philadelphia

Epidemiology Section

Harold L. Israel, M.D., Henry Phipps Inst., 7 & Lombard Sts., Philadelphia, Pa., Instructor in Medicine

Dr. Alberto P. Ros, Almendares 4 bajos Esq. Carlos III, Havana, Cuba, Field Director, Malaria Commission of Cuba

Margaret E. Tharp, A.B., 127 Athol Avenue, Oakland, Calif., Junior Public Health Analyst, State Dept. of Health

DECEASED MEMBERS

Floyd J. Atwell, M.D., Cooperstown, N. Y., Elected Member 1926

Arthur W. P. Blohm, Baltimore, Md., Elected Member 1932

William B. Furman, M.D., Pickens, S. C., Elected Member 1936

Charles F. Glueck, Boston, Mass., Elected Member 1923, Elected Fellow 1929

Margaret H. Hand, R.N., Binghamton, N. Y., Elected Member 1930

William O. Hewitt, M.D., Attleboro, Mass., Elected Member 1923

George D. Lummis, M.D., Middletown, Ohio, Elected Member 1916, Elected Fellow 1922

Allan L. McLean, M.D., C.P.H., Halifax, N. S., Canada, Elected Member 1937

A.P.H.A. DIRECTORY OF PERSONS ENGAGED IN VITAL STATISTICS

THE Vital Statistics Section officers, in coöperation with the central office staff, have prepared and published a Directory of persons engaged in vital statistics work in the United States and Canada. This, the second edition of the Directory, contains 832 names and includes the federal, state, and local services and private organizations. The preceding Directory published in 1935 contained only 498 names. Included in the new Directory are the names of 351 members and Fellows of the American Public Health Association.

The effort has been made to have each name and title accurate and to this end each listing was submitted to the person concerned before publication.

Besides serving as a useful directory for this special field, the publication is directly serviceable to the Association because it serves to increase membership (at least 47 new members to date), and further identifies the Association with useful services to the membership. Other Sections are considering similar directories.

This Directory was prepared with the help of Jessamine S. Whitney and Dr. John Collinson of the Section, by Elsie A. Siemer, Beatrice Schott, and Helen Baum, of the Association staff.

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearinghouse on employment. This is a service of the Association conducted without expense to employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

POSITIONS WANTED

ADMINISTRATIVE

Physician, aged 39, excellent graduate training and experience in public health, specialized in tuberculosis and epidemiology, now employed, will consider position with salary of $4,500 or better. **A473**

Experienced physician, graduate University of Illinois; M.P.H., Johns Hopkins, 1940; seeks administrative opening suitable to his proven ability. Excellent references. **A466**

Physician, aged 38, M.P.H., Harvard, 1932; experienced as director of county units and in state department of health; will consider administrative position. **A474**

Physician, graduate University of Iowa, candidate for Dr.P.H. at Harvard, seeks good administrative position. **A476**

Physician, M.D., Yale; M.S.P.H., Columbia; also short course for health officers, Vanderbilt; good clinical background; 3 years' public health experience; will consider appointment in child health, epidemiology or public health administration. **A350**

Physician, graduate Columbia, 1919; Dr.P.H., Yale, 1938; specializing in child hygiene; experienced with community surveys; will consider administrative position or opportunity in child hygiene. **A475**

Experienced physician with A.B. and M.D. from University of Pennsylvania, and M.P.H. from Yale, desires full-time position as health officer. Will consider going abroad with relief expedition to Europe or Asia. **A477**

HEALTH EDUCATION

Young woman, Ph.D., Columbia University; splendid background of experience in health education, will consider position as director of public health education. **H294**

Well qualified woman physician, M.A. and M.D. from Stanford; with 6 years' experience in nationally known secondary school in health education and medical advisory duties, wishes position in college health work. **H448**

Health educator, with excellent background of teaching experience in schools; M.S.P.H., University of Michigan; wishes position where skill with educational sound film projection and other recognized technics will be appreciated. **H405**

LABORATORY

Teaching, executive or administrative position desired by experienced teacher in bacteriology and public health; Ph.D., Cornell; now professor in grade A medical school. **L327**

Experienced woman bacteriologist, Ph. D., University of Illinois, 1937, wishes position in teaching or research. Excellent bibliography and references. **L410**

SANITARY ENGINEERING

Engineer, aged 38, 3 years' experience as district sanitarian supervisor, state department of health, together with work on plumbing, heating, and ventilation, will consider position in the plumbing and heating field or state department of health. Prefers middle western or western states. **E453**

Public health engineer, B.S. in Sanitary Engineering from Massachusetts Institute of Technology, experienced in Massachusetts, Connecticut, and Kentucky, seeks position as sanitary or public health engineer with health department. **E380**

Engineer with good training and experience in water treatment, sewage plant operation and in research, wishes position as superintendent. Can go anywhere. **E422**

Advertisement

Situations Wanted

PUBLIC HEALTH PHYSICIAN—B.S. and M.D. degrees state university, M.P.H. Johns Hopkins; 4 years, director of county health unit; recommended as a highly skilled man in the field of public health theory and administration; for further information write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

PUBLIC HEALTH NURSE—Graduate of one of country's leading schools of nursing, B.S. degree, state university, with major in public health nursing; 8 years' experience in tuberculosis and public health nursing; served as director of visiting nurses association for several years; taught in public schools before entering training school; age 36; will go anywhere; for further information write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

Advertisement

Opportunities Available

PUBLIC HEALTH PHYSICIAN—With minimum 3 years' postgraduate study in obstetrics for state health appointment; organizing and directing ability essential; interesting opportunity. PH2–1, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

COUNTY HEALTH PHYSICIANS—(a) Rural health appointment under state department of health; man from South or West preferred. (b) Montana; opportunity to combine duties as county health physician at salary of $200 a month with private practice which will bring estimated annual income of $5,000; ranching district. (c) Physician with public health training to serve as commissioner of health; rural county; $3,000 plus $600 travel allowance. PH2–2, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

CITY HEALTH PHYSICIANS—(a) Director of public health to assume full charge in city of 10,000; may select own personnel; no politics; $4,000–$5,000, increasing; Atlantic Seaboard. (b) Young physician qualified to plan full-time public health program for city of 5,000; Ohio. (c) Young married physician for general practice in connection with municipal health department; Virgin Islands; $2,400. PH2–3, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

PUBLIC HEALTH PHYSICIANS—(a) For full-time state appointment; must have public health certificate from recognized school, plus actual field experience; man under 40 preferred; $4,200 plus $500 automobile allowance. (b) District health physician; Master's degree in public health, experience in rural health work required; $4,200 plus $600 travel allowance; Midwest. PH2–4, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

STUDENT HEALTH PHYSICIANS—(a) Four year appointment beginning September, 1941; opportunity for graduate work in Public Health or other specialty leading to Master's degree; annual salary increase. (b) For two year fellowship, eastern university; some teaching; first year, $1,500; maintenance; second year, $1,725, maintenance, or $2,250 without maintenance; September, 1941, to June, 1942. (c) Residence in student health service; midsouthern university; recent graduates eligible; $100, maintenance. PH2–5, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

PUBLIC HEALTH NURSE EXECUTIVES—(a) Educational director and consultant in division maternal and child health; $200, plus travel allowance; West. (b) Instructor in public health; school of nursing affiliated with midwestern university. (c) Public health instructor; Catholic preferred; 600 bed hospital; East. (d) Public health nursing supervisor; responsibility covers generalized program including school and delivery service; degree desirable but not essential; $175, plus travel allowance. PH2–6, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

PUBLIC HEALTH NURSES—(a) County health department; minimum 13 credits in public health nursing required; $1,500, plus $300 automobile allowance; midwest. (b) About twelve staff nurses; state public health nursing service; West. (c) Several; state health program; Deep South. (d) City health department; program includes all school nursing and maternity center; eighteen nurses on staff; one immediate vacancy, several in prospect; $125–$150; minimum 4 months' accredited course in public health nursing required. (e) County health department; duties include school nursing; Florida. (f) State department of health; certified public health nurse required; $135, mileage allowance; Far West. (g) Public health nurse with some training or experience in social service; large children's hospital. PH2–7, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

PUBLIC HEALTH NURSE—Young woman with B.S. degree and public health training and experience qualified to integrate public health nursing in school program for colored unit of large training school; must be familiar with schools of nursing programs; unusual opportunity. PH2–8, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

OUTPATIENT DEPARTMENT SUPERVISORS—(a) Graduate nurse with public health training to serve as outpatient department supervisor, small community hospital; ability in organization desirable; $100, meals, $12 room allowance. (b) Certified public health nurse to take charge small out-patient department and central dressing room; 250 bed hospital; vicinity Nation's Capital. PH2–9, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

CITY BACTERIOLOGIST—One year appointment in city of 65,000; work will include milk and water analysis; some chemistry; bacteriology or chemistry major preferred; $150. PH2–10, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

Advertisement

PUBLIC HEALTH NURSING OPPORTUNITIES—(A) Medical Social Worker; nurse with degree in sociology or public health; attractive middle western hospital opening; $150 monthly. (B) Chief Registrar; large nurses' organization seeking college woman with pleasing personality; $150, increase later. (C) Social Worker; southern hospital, large university town; salary open. (D) Staff Nurse; progressive middle western city, requiring public health training; salary above average. (E) Supervisor of Nurses; requires public health certificate, speaking ability; attractive salary, travelling allowance, opportunity increase. (F) Public Health Nurse; middle western industrial city near Chicago; salary open. PH–1, Aznoe's Central Registry, 30 North Michigan, Chicago.

NEWS FROM THE FIELD

AMERICAN COMMISSION TO STUDY HEALTH CONDITIONS IN EUROPE

AN American commission to study health conditions in Europe, including epidemic control and the evacuation of children, left New York January 18 on the SS. Excalibur for Lisbon. The commission includes Dr. Thomas Parran, Surgeon General of the Public Health Service, Dr. Martha Eliot, Assistant Chief of the Children's Bureau, Major Eugene W. Ridings, of the War Department General Staff, and F. C. Horner, Transportation Consultant to the Defense Commission.

According to the press, Dr. Parran stated that the Commission would try to find out what happens to civilian populations, hospital and sanitation facilities, schools and education, transportation and other public utilities under constant bombing.

PLAN TO ERADICATE TUBERCULOSIS

THE appointment has been announced of a coördinating committee which has chosen as its goal the elimination of tuberculosis as an important cause of death by 1960 in upstate New York. Represented on the committee, beside Edward S. Godfrey, Jr., M.D., New York State Commissioner of Health, and members of the State Health Department, are: William J. Tiffany, M.D., State Commissioner of Mental Hygiene; David C. Adie, State Commissioner of Social Welfare; Dr. Peter Irving, Secretary, Medical Society of the State of New York; Homer Folks, Secretary, George J. Nelbach, Assistant Secretary, and Robert W. Osborne of the State Charities Aid Association, and Donald B. Armstrong, M.D., Vice President of the Metropolitan Life Insurance Company, which is financing the program of the coördinating committee.

Describing the success of a similar coordinating effort with reference to diphtheria, which began fifteen years ago, Dr. Godfrey expressed the opinion that the same method could be made effective with tuberculosis. Although the rate has declined since 1907 from more than 150 per 100,000 population to 36 in 1939, it is still possible to accomplish more through a coöperative effort in order that the money and effort now required for the treatment of the disease can be diverted to other needs which every year become more pressing. Dr. Armstrong emphasized the importance of the problem to the insurance company because the disease costs the company annually in death claims more than seven million dollars.

MEDICAL CARE QUARTERLY

A NEW journal, *Medical Care* (a quarterly), appeared January 21 under the auspices of the Committee on Research in Medical Economics, Inc., 1790 Broadway, New York, N. Y., with Michael M. Davis, Ph.D., Chairman of the committee, as its editor. Its stated purposes are to disseminate information concerning the economic and social aspects of medicine, to promote a scientific approach to the subject, and to stimulate practical action by the professions and the public in their common interest. The views and interests of the professions that furnish medical care and the people who receive it are equally to be considered.

The first issue contains, among other articles, a review of what 24 state medical societies have done during 1940 concerning voluntary health insurance plans. The journal has a group of 45 Editorial Advisers, representing the medical and allied professions, social scientists, public administrators, and representatives of the general public interest.

ARMY MEDICAL LIBRARY WISHES REPRINTS

AN announcement from the Army Medical Library, Washington, D. C., by Col. Harold W. Jones, Librarian, states that the Army Medical Library is glad to have reprints of articles sent by authors. All such reprints are placed in a special collection and are catalogued by the name of the author. Thus they form a ready bibliography of the work of any given writer and a valuable supplementary source of material when the original volume of publication is temporarily unavailable at the bindery or on loan. Authors would do well to send two reprints of each of their writings to the Army Medical Library for this purpose.

NURSES ON LEAVE FOR MILITARY SERVICE

AT the request of Dr. G. C. Dunham, Executive Secretary of the Health and Medical Committee functioning under the United States Coördinator of Health, Welfare and Related Defense Activities, the following recommendation of the Subcommittee on Nursing is published for the information of our readers:

> It is suggested that organizations employing nurses who volunteer and are accepted for assignment to active service in military establishments give such nurses one year's leave of absence without change of status.

MEXICO REORGANIZES HEALTH DEPARTMENT

THE Federal Department of Health in Mexico has been reorganized under the new administration with Dr. Victor Fernandez Manero, Chief of the Federal Department of Health, Dr. Mario Quinones, Secretary General, and Luis Babadilla in charge of the office.

Dr. Angel de la Garza Brito continues as Dean of the School of Public Health and Hygiene in Mexico City.

CUBAN PHYSICIANS VISIT NEW YORK

A GROUP of five Cuban physicians from Havana visited New York City in January for conferences with the Dean and staff of the Cornell University Medical College, and in connection with a plan for the exchange of graduate students between the University of Havana and Cornell University.

The group consisted of Dr. Carlos E. Finlay, Vice-President of the American Public Health Association; Dr. Felix Hurtado, Undersecretary of Health, Cuba; Dr. Alberto Inclan; Dr. Angel Vieta, Dean of the Medical Faculty of the University of Havana; and Dr. Alfredo Antonetti.

INDUSTRIAL PUBLIC HEALTH NURSING SERVICES SYMPOSIUM

A SYMPOSIUM on Industrial Public Health Nursing Services, sponsored by the State Board of Health and the Industrial Nurses of Wisconsin, will be held February 20–22, at the Hotel Wisconsin, Milwaukee, Wis.

Agencies coöperating include the following:

Wisconsin State Nurses Association
Wisconsin State Medical Society
University of Wisconsin
Wisconsin Industrial Commission
Wisconsin Association of Manufacturers
Marquette University
Wisconsin Anti-Tuberculosis Association
Milwaukee City Health Department
Milwaukee Association of Commerce
Industrial Relations Association
Employers Mutual Liability Insurance Company of Wisconsin

UNIVERSITY OF MINNESOTA FELLOWSHIPS, 1941–1942

THE University of Minnesota has announced a number of in-service fellowships in Public Administration for the academic year 1941–1942. The period of training will extend from the beginning of the fall term through the winter and spring quarters and the first

term of the summer session. Individual courses of study will be planned for each student, depending upon previous preparation, personal interests, and the requirements of public service. These in-service fellowships will carry stipends varying in amount from $1,000 to $1,500 a year, depending upon the student's experience, his present salary, and the number of his dependents.

Applicants for these fellowships must be citizens of the United States, not over 35 years of age, graduates of recognized universities and colleges, and must qualify for admission to the Graduate School of the University of Minnesota. They must have not less than 3 years of experience in public service, preferably in a position involving some administrative responsibility. Each applicant must be endorsed by his governmental employer, and he should secure promise of a leave of absence for the duration of his fellowship year.

Applications must be submitted not later than April 1, 1941. Requests for application blanks and further information should be addressed to the Secretary of the Committee on Training for Public Administration, 13 University Library, University of Minnesota, Minneapolis, Minn.

NATIONAL DENTAL HYGIENE ASSOCIATION

THE formation of the National Dental Hygiene Association, Incorporated, with offices in Washington, D. C., was recently announced. Randolph G. Bishop, of the Washington, D. C., Community Chest, has been appointed Executive Secretary.

The association will publish approved educational material for lay consumption, encourage dental research and stimulate generally a broader understanding of the basic relationship of dental care to the health needs of the country. It is hoped that lay support and lay participation in the field of dental health will be encouraged. The association has been founded as a memorial to William Henry Hall through a gift from the Martha M. Hall Foundation of New York City.

NURSING SERVICES BUILDING DEDICATED IN HAWAII

THE Mabel Smyth Memorial Building, in Honolulu, providing offices for the Nurses Association of the Territory of Hawaii and the City and County of Honolulu, the Board of Nursing Registration, the Nursing Service Bureau and the Physicians' Exchange, was dedicated January 4.

The building was erected from funds contributed by doctors, nurses, interested individuals and business firms throughout the Territory of Hawaii to provide medical library facilities and headquarters for the official nursing and medical organizations.

NATIONAL DEFENSE ACTIVITIES

THE U. S. Public Health Service has been designated a national defense agency. The Division of Industrial Hygiene is preparing to assist in the prevention and control of health hazards in Government arsenals and navy yards. Surgeon General Thomas Parran has authorized the Chief of the Division of Industrial Hygiene to employ additional personnel for the purpose of organizing industrial hygiene programs and training personnel within these military establishments to carry out the programs.

The Surgeon General has also authorized the Division of Industrial Hygiene to assign several units, each unit consisting of a doctor and an engineer, to coöperate with State industrial hygiene units in giving special attention to airplane and munitions plants, and to shipyards. The Vermont unit is now receiving assistance in the investigation of health problems which have arisen in the machine tool in-

dustry as a result of inadequate housing, long hours of work, and certain foundry hazards.

It is hoped that there will be a sufficient number of such units to aid other States with their most acute problems in defense industries. State industrial hygiene units are urged to inform the Division of Industrial Hygiene of their most immediate defense problems and to make any suggestions which they feel may be helpful to other units.

PERSONALS

Central States

ASA S. BACON † has retired as Superintendent of Presbyterian Hospital, Chicago, Ill., after 40 years of service at the Hospital, as of January 1, 1941. He will be succeeded by J. DEWEY LUTES, who has been Superintendent of Ravenswood Hospital for the last 9½ years.

EDWARD BARTOW, PH.D.,* Professor and Head of the Department of Chemistry and Chemical Engineering at the University of Iowa, Iowa City, Ia., has been granted a leave of absence to join the research laboratories of the Johns-Manville Corporation, at Manville, N. J.

DR. CHARLES C. CROSBY, of Ashtabula, Ohio, has been appointed Health Officer of Ashtabula County, succeeding DR. JONAS L. HURST, of Dorset.

ROLAND R. CROSS, M.D.,† of Dahlgren, Ill., Assistant Director, State Department of Health, has been named Acting Health Director.

DR. LOUIS N. DAKIL, of Mayetta, Kan., has been appointed Physician of the Quapaw Indian Agency, with headquarters in Miami, succeeding DR. JOSEPH H. COOGAN, transferred to an agency in Nevada.

DR. CHARLES A. DIETER, of Harper, Kans., has been appointed Health Officer in charge of Harper County, to succeed the late DR. CLARENCE E. RESSLER, of Anthony.

DR. GEORGE R. DOUGLAS, of Valparaiso, Ind., has been appointed Health Officer of Porter County, filling the vacancy caused by the death of DR. HERMAN O. SEIPEL.

DR. C. MILTON EBERHART, formerly District Health Superintendent in the Illinois Department of Public Health, Springfield, has been appointed Vice-Chairman of the Department of Preventive Medicine, Public Health and Bacteriology of Loyola University School of Medicine.

DR. LAWRENCE E. FOSTER, formerly of Monticello, Ill., has been appointed head of a new health unit in Jefferson County, with headquarters in Port Townsend, Wash.

DR. JOHN WILLARD HANSON, Medical Fellow in Pediatrics, University of Minnesota Hospitals, Minneapolis, Minn., has accepted a position in the Health Service of the University of Kansas, Lawrence, effective September 1.

DR. JAMES N. HILL, of Hutchinson, Kans., has been appointed Health Officer of Reno County.

LORIN E. KERR, JR., M.D.,† of Toledo, Mich., has been appointed Director of the Iron County Health Department, succeeding THOMAS E. CAMPER, M.D.,† who is on leave of absence for graduate study at the University of Michigan.

CORNELIUS E. KLINE, M.D., formerly of Vienna, has been appointed in charge of the Moline District Health Unit, succeeding CARL A. PETERSON, M.D.,† of Moline, Ill., who resigned because of ill health.

DR. GEORGE W. MORROW, Managing Director of the Kankakee State Hospital, has been named Acting Direc-

† Member A.P.H.A.
* Fellow A.P.H.A.

tor of Public Welfare, of the Illinois State Department of Health.

DR. CASIMIR PARK, of Milwaukee, Wis., has been appointed Venereal Disease Control Officer for the City and County of Milwaukee, effective January 2, 1941. He serves under the direction of DR. EDWARD R. KRUMBIEGEL,† City Health Officer.

ERIC P. PFEIFFER, M.D., C.P.H.,† formerly of Oakville, Ia., has been appointed Director of the Vital Statistics Division of the State Department of Health, effective October 1.

BUEL H. VAN LEUVEN, M.D.,† of Petoskey, Mich., has been named Health Officer of Menominee County, to succeed CLIFFORD C. CORKILL, M.D.,† who is studying at the Johns Hopkins University School of Hygiene and Public Health, Baltimore.

Eastern States

LEONA BAUMGARTNER, M.D., PH.D.,* who has been District Health Officer in the Kips Bay-Yorkville Health Center of the New York City Department of Health, has been appointed Acting Director of the Bureau of Child Hygiene of the Department of Health, New York City. Dr. Baumgartner is Associate Editor of the *American Journal of Public Health*.

BERNARD M. BLUM, M.D., M.P.H.,* recently Epidemiologist of the Division of Communicable Diseases, New York State Department of Health, Albany, has been appointed District Health Officer of the Washington Heights-Riverside Health District of the New York City Department of Health, where he also assumes teaching responsibilities in the Delamar Institute of Public Health, Columbia University. He succeeds JACOB H. LANDES, M.D.,† who is transferred as District Health Officer to the Williamsburg-Greenpoint Health Center, Brooklyn.

DR. REX E. BUXTON, of Boston, Mass., has been appointed Director of the Washington Institute of Mental Hygiene, Washington, D. C., succeeding DR. PAUL J. EWERHARDT, resigned.

DR. JERAULD A. CAMPBELL, of Niagara Falls, N. Y., has been appointed Health Officer of Grayson County, Ky.

DR. HAZEN A. CALHOUN, JR., of Middletown, Conn., has been appointed Health Officer of Haddam, succeeding DR. NOAH A. BURR.

HILARY J. CONNOR, M.D.,† of Providence, R. I., has been appointed Director of a new Department for Venereal Disease Control in the State Health Department.

FRANKLIN M. FOOTE, M.D., DR.P.H.,* recently chief of the Division of Local Health Administration of the Connecticut State Department of Health, Hartford, has been appointed District Health Officer in the Kips Bay-Yorkville Health District, New York, N. Y., where he is also instructor of Public Health at Cornell University Medical College. Dr. Foote succeeds DR. LEONA BAUMGARTNER,* who has been appointed Acting Director of the Bureau of Child Hygiene of the New York City Department of Health.

ALEXANDER D. LANGMUIR, M.D.,† of Albany, N. Y., has been appointed Deputy Commissioner of the Westchester County [New York] Department of Health, effective February 1. He will have an office in Peekskill, and be in charge of the northern section of the County. Dr. Langmuir is a graduate of the Cornell University Medical School and has a Master of Public Health degree from Johns Hopkins University. For the past 3 years he has been with the New York State Department of Health in

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* Fellow A.P.H.A.
† Member A.P.H.A.

special work on pneumonia and as Assistant District Health Officer.

ERNEST M. MORRIS, M.D., C.P.H.,* has been appointed Health Officer of Newton, Mass.

ROBERT V. SCHULTZ, M.D.,† of New York, N. Y., has been named Director of Public Health Education for the Georgia State Department of Health.

GEORGE M. WHEATLEY, M.D.,† has been appointed Assistant Medical Director of the Metropolitan Life Insurance Company, of New York, effective January 1. He has recently served as Director of the School Health Service of the New York City Department of Health, and was formerly connected with the School Health Study program in New York City. Dr. Wheatley's responsibility will be primarily with relationships between the Welfare Division and medical societies, preventive medical movements, and health services.

Southern States

CHARLES D. BOWDOIN, M.D., C.P.H.,† of Atlanta, Ga., Director of the Division of Preventable Diseases, State Department of Public Health, has been appointed Special Consultant for the U. S. Public Health Service by DR. THOMAS PARRAN, Surgeon General of the Service.

EDWARD ROSS DAVIES, M.D.,† of Ellicott City, Md., formerly Health Officer of Howard County, has been appointed Assistant Commissioner of Health of Baltimore, effective September 18, to succeed WILLIAM H. F. WARTHEN, M.D.,* who is now Health Officer of Baltimore County.

DR. NICHOLAS H. DEJANNEY, of Detroit, Ala., has been appointed a member of the tuberculosis staff of the Alabama State Department of Health.

DOUGLAS H. FRYER, M.D., D.P.H.,† former Health Officer of Greene County, Ala., has been appointed Director of the Rockingham County Health Department, which is being organized for the first time with the main office located at Leaksville, N. C., and branch offices at Reidsville and Madison, N. C.

DR. CHARLES W. HARWELL, Assistant Professor of Anatomy, Emory University School of Medicine, Atlanta, Ga., has resigned, to become a Fellow in Public Health at the University of North Carolina.

ALLAN J. JERVEY, JR., M.D., of Tryon, N. C., has been appointed District Health Officer for Rutherford and Polk Counties, to succeed DR. HAROLD C. WHIMS, M.D., C.P.H.,† of Rutherfordton, who was recently transferred to the Lincoln-Catawba District.

JAMES JOHNSON, Dairy and Food Inspector of the Arlington County Virginia Health Department, has reported for active duty to the Chemical Warfare Division of the U. S. Army Camp Holobaird, Virginia.

JOSEPH A. JOHNSON, M.D.,† of Greensboro, Ga., has resigned as head of the Greene County Health Unit, effective November 1, to accept a similar position at Toccoa in charge of the unit including Stephens, Habersham, and Rabun Counties.

MRS. VIRGINIA O'DELL, Director of Nurses, Arlington County, Va., will receive her Certificate in Public Health Nursing from William and Mary College, School of Public Health Nursing, in February.

MAXWELL F. RAINE, M.D., of Point Pleasant, W. Va., District Health Officer for Mason, Jackson, Putnam and Roane Counties, has been appointed Health Officer of Kanawha County, to succeed TURNER E. CATO, M.D.,† who recently went to Miami, Florida.

* Fellow A.P.H.A.
† Member A.P.H.A.

DR. JOHN L. RUFF, formerly of St. Paul, Ark., has been appointed Medical Director for Crawford, Franklin, and Logan Counties, succeeding DR. ALBERT S. J. CLARKE, of Ozark, who plans to enter the School of Public Health at Harvard University.

MARGARET SCOTT, R.N., Public Health Nurse with the Glynn County, Ga., Health Department, was granted a Certificate from the Peabody School of Public Health Nursing, January 1.

THERESE STAFFORD, R.N., Staff Nurse with the Glynn County, Ga., Health Department, has been granted a 6 months leave of absence, to attend the Medical College of Virginia School of Public Health Nursing.

DR. JOHN D. STILLWELL, of McRae, Ga., has been named Director of the Southeastern Region of the State Department of Public Health, which covers 26 counties. He will have headquarters in Waycross, succeeding DR. BERT H. MALONE, resigned.

WILLIAM CARROLL SUMMER, M.D.,† of Minden, La., Director of the Webster Parish Health Unit for the past 10 years, has resigned to become Consultant Adviser to the parish health units in 18 parishes of northern Louisiana. He will be succeeded by EDMOND G. KLAMKE, M.D., of New Roads, Health Director of Pointe Coupee Parish.

JAMES A. THRASH, M.D.,† Health Officer of Columbus and of Muscogee County, Ga., has been granted leave of absence until June, 1941, to take special studies in health work at the University of North Carolina School of Medicine, Chapel Hill.

JOHN M. WHITNEY, M.D.,† of Jennings, La., head of the Jefferson Davis Parish Health Unit, has been made Director of 15 parish health units in southwestern Louisiana; the area runs from the Texas line to Terrebonne Parish on the south and to Pointe Coupee Parish on the north.

Western States

DR. ALEXANDER BRADFIELD, of Tillamook, Ore., has been appointed Health Officer of Tillamook County.

RUTH W. HAY,† for the past 4 years Assistant Professor of Public Health Nursing in the Department of Hygiene at the University of California, Berkeley, has been appointed Professor of Public Health Nursing in the School of Public Health of the University of North Carolina. Miss Hay will assume her position at Chapel Hill in the spring, and courses in public health nursing will be offered beginning in the fall of 1941. The Department of Public Health Nursing will be an integral part of the School of Public Health, and coöperation will be maintained with rural, state, city, government and other agencies.

DR. JOHN R. SEELEY, formerly of Fresno, Calif., has been appointed Health Officer of Coos County.

DR. LEE A. STONE,* of Madera, Calif., was elected President of the Health Officers' Department of the League of California Cities at a meeting held September 18 in San Diego.

Philippine Islands

DR. MARIANO C. ICASIANO was recently appointed Health Officer of Manila, in connection with the establishment of a new City Department of Health and Welfare.

DEATHS

GEORGE D. LUMMIS, M.D.,* Health Officer of Middletown, Ohio, aged 77, died December 26, 1940, after more than 50 years as Health Officer of Middletown. For 22 years he was a member of the Ohio State Board of Health and at his death was President of the International Society of Medical Health Officers. Dr. Lummis

* Fellow A.P.H.A.
† Member A.P.H.A.

joined the American Public Health Association in 1916 and was a Charter Fellow. At the time of his death he was a member of the Governing Council and representative from the Health Officers Section on the Committee on Eligibility.

E. M. MORELAND, Sanitary Inspector for the past 10 years in the Arlington County, Va., Health Department, died December 30, 1940.

W. L. STEVENSON,* Sanitary Engineer of Harrisburg, Pa., died January 4. He was Director of the Bureau of Engineering of the Pennsylvania Department of Health.

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* Fellow A.P.H.A.

CONFERENCES AND DATES

American Association for Social Security. New York, N. Y. March 28–29.

American Camping Association — 18th Annual Convention. Wardman-Park Hotel, Washington, D. C. February 13–15.

American College of Physicians—25th Annual Session. Statler Hotel, Boston, Mass. April 21–25.

American Library Association. Annual Meeting. Boston, Mass. June 19–25.

American Medical Association — 92nd Annual Meeting. Cleveland, Ohio. June 2–6.

American Orthopsychiatric Association —18th Annual Meeting. Theme: Behavior and Its Disorders. Hotel Pennsylvania, New York, N. Y. February 20–22.

American Public Health Association —70th Annual Meeting. Convention Hall, Atlantic City, N. J. October 14–17.

American Society of Civil Engineers—Spring Meeting. Baltimore, Md. April 23–26.

American Society of Heating and Ventilating Engineers — Summer Meeting. San Francisco, Calif. June 16–20.

American Society of Planning Officials. Winter Discussion Conference, Chicago, Ill. February 13–14. National Conference on Planning, in coöperation with American Institute of Planners, American Planning and Civic Association, National Economic and Social Planning Association. Philadelphia, Pa. May 11–14.

American Water Works Association—61st Annual Convention. Royal York Hotel, Toronto, Ont., Canada. June 22–26.

New Jersey Section—Roger Smith Hotel, New Brunswick, N. J. February 19.

New York Section—Syracuse, N. Y. March 27–28.

Indiana Section—Indianapolis, Ind. April 24–25.

Illinois Section — Lincoln Douglas Hotel, Quincy, Ill. April 28–30.

Pacific Northwest Section—Seattle, Wash. May 8–10.

Southeastern Section — Charleston, S. C. May 12–14.

Ohio Section—Cincinnati, Ohio. May 15–16.

Michigan Section — Grand Rapids, Mich. September 24–26.

Southwest Section—Fort Worth, Tex. October 13–16.

California Section — Fresno, Calif. October 22–25.

Four States Section—Baltimore, Md. November 6–7.

Arizona Sewage & Waterworks Association—16th Annual Meeting. Yuma, Ariz. March 21–23.

Child Welfare League of America—Midwest Regional Conference. Chicago, Ill. April 17–19.

Civil Service Assembly — Eastern Regional Meeting. Washington, D.C. Third week in May. Central Regional Meeting, probably May.

Colorado Public Health Association. La Junta, Colo. May.

Conference of State and Territorial Health Officers of North America. Washington, D. C. Tentative date: Week of April 28.

Florida Public Health Association. Orlando, Fla. December, 1941.

Group Health Federation of America—Third Annual Convention. Los Angeles, Calif. June.

Heating, Piping & Air Conditioning Contractors National Association. San Francisco, Calif. June 16–20.

Idaho Public Health Association. Lewiston, Ida. October 6–7.

Industrial Public Health Nursing Services Symposium. Hotel Wisconsin, Milwaukee, Wis. February 20–22.

Medical Education and Licensure—Annual Congress. Chicago, Ill. February 17–18.

Michigan Public Health Association. Grand Rapids, Mich. November 12–14.

Missouri Public Health Association. St. Louis, Mo. April.

National Association of Housing Officials. Cincinnati, Ohio. April 16–19.

National Society for Crippled Children —8th Annual Seal Sale. March 21–April 13.

New England Conference on Tomorrow's Children — Second. Littauer Center, Harvard University, Cambridge, Mass. July 16–18.

New Mexico Public Health Association. Gallup, N. M. October.

New York City Social Hygiene Week —sponsored by Bureau of Social Hygiene, Department of Health of New York City, in coöperation with the New York State Department of Health, and the U. S. Public Health Service. Meetings being held in Auditorium, Health Department Building, 125 Worth Street, New York, N. Y., during the week.

Ohio Federation of Public Health Officials. Columbus, Ohio. May 23.

Pacific Heating and Air Conditioning Exposition. Exposition Auditorium, Civic Center, San Francisco, Calif. June 16–20.

Pennsylvania Public Health Association. Wilkes-Barre, Pa. May 28.

Regional Conference on Social Hygiene. Under auspices of: Social Hygiene Committee, New York Tuberculosis and Health Association, and Eighty-eight Sponsoring Organizations. Hotel Astor, New York, N. Y. February 5.

Smoke Prevention Association of America, Inc.—35th Annual Convention. Ansley Hotel, Atlanta, Ga. June 3–6.

Social Hygiene Day—Fifth National—February 5. (New York City Social Hygiene Week, January 29–February 6.)

Southern California Public Health Association. Los Angeles, Calif. February 18.

State Charities Aid Association—State and Local Committees on Tuberculosis and Public Health. Hotel Commodore, New York, N. Y. May 20–21.

Tennessee Public Health Association. Nashville, Tenn. May.

Western Branch, American Public Health Association — 12th Annual Meeting. San Diego, Calif. May 26–30.

Foreign

International College of Surgeons. Mexico City, Mexico. August 10–13.

Pan American Medical Association—8th Congress. Buenos Aires, Argentina. 1941.

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